

2006 ACCESSORIES & EQUIPMENT

Stationary Windows - Lucerne

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Rearview Mirror Screw	2 N.m	18 lb in

SCHEMATIC AND ROUTING DIAGRAMS

DEFOGGER SCHEMATICS

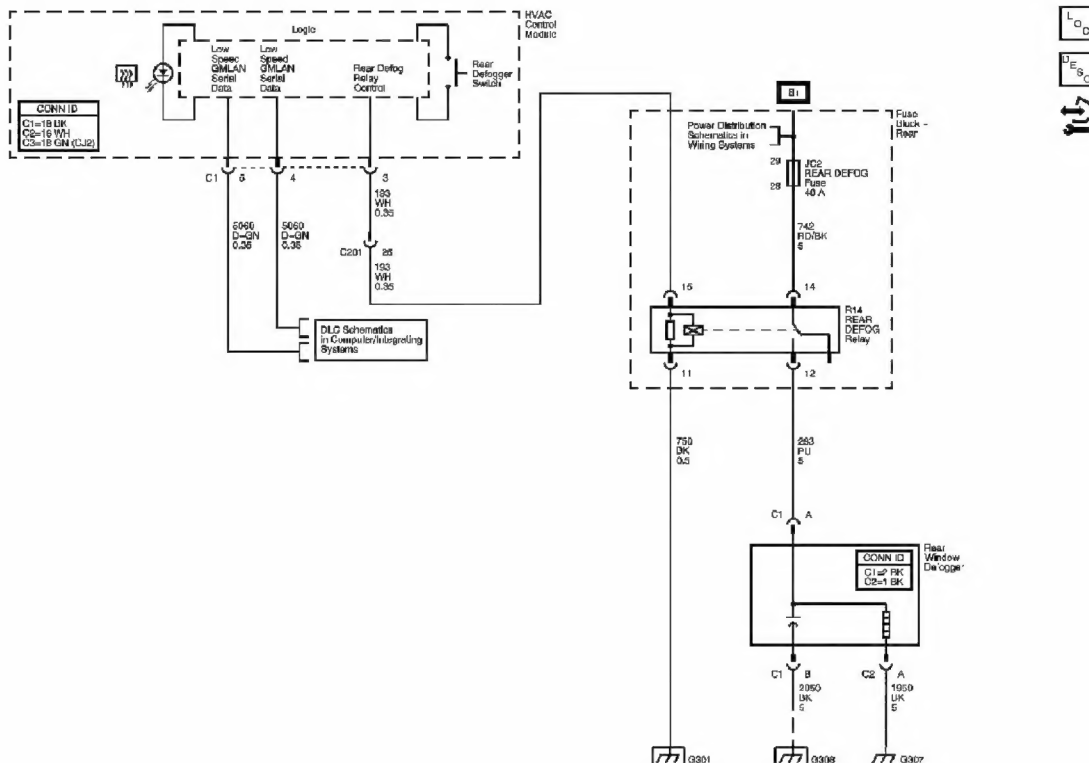


Fig. 1: Defogger Schematic
 Courtesy of GENERAL MOTORS CORP.

INSIDE REARVIEW MIRROR SCHEMATICS

STATIONARY WINDOWS COMPONENT VIEWS

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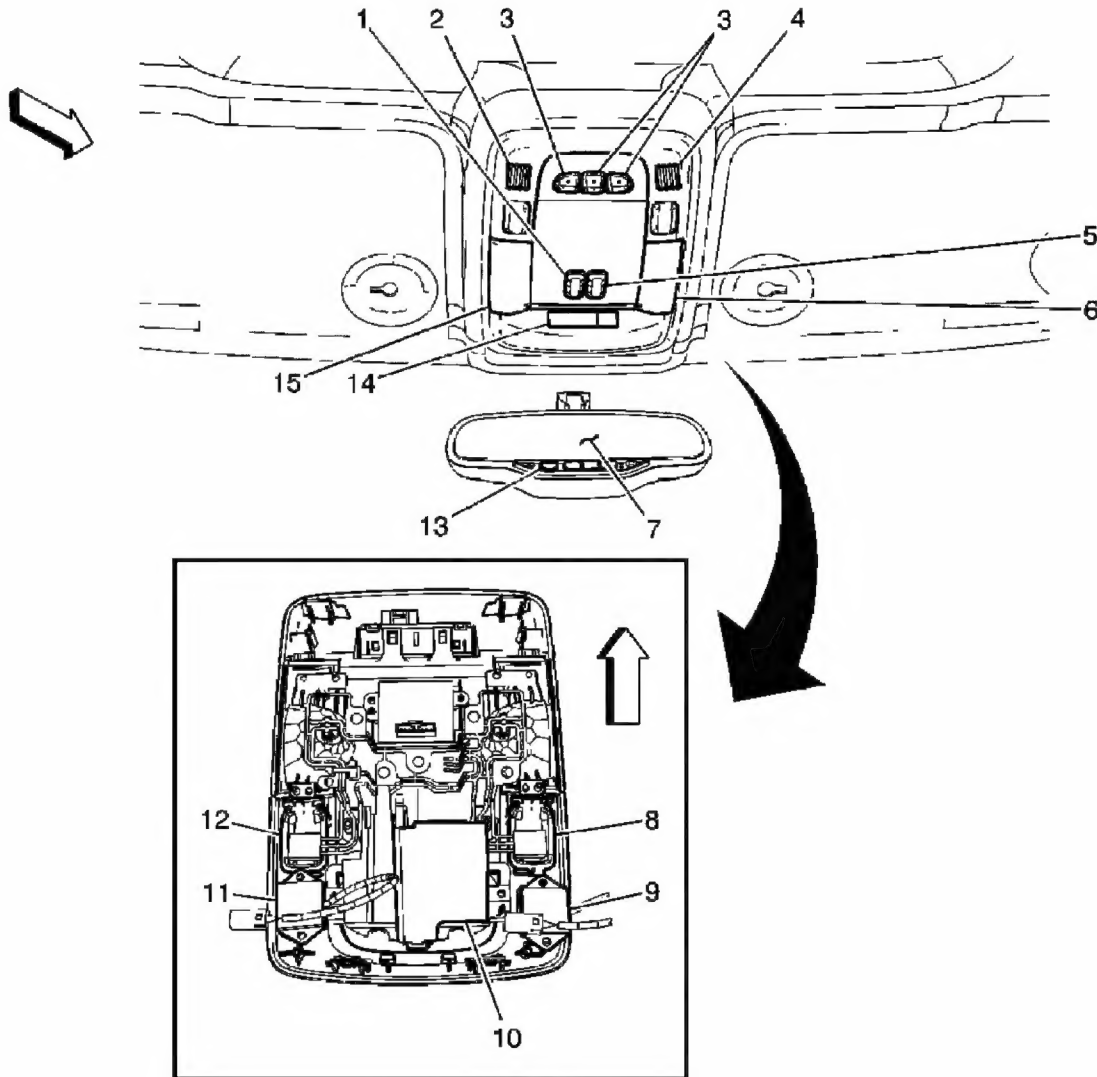


Fig. 3: View Of Overhead Console and Inside Rearview Mirror Components
Courtesy of **GENERAL MOTORS CORP.**

Callouts For Fig. 3

Callout	Component Name
1	Sunroof Switch - Open/Close (CF5)
2	Cellular Microphone (UE1, U3U)
3	Garage Door Opener Buttons (UG1)
4	Cellular Microphone (UE1, U3U)
5	Sunroof Switch - Vent (CF5)
6	Courtesy Lamp - Overhead Console - Right
7	Inside Rearview Mirror
8	Courtesy Lamp Switch - Right
9	Cellular Microphone (UE1, U3U)

2006 Buick Lucerne CXS

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17	Inside Rear View Mirror Transmitter (UG1)
18	Cellular Navigation (UE1) and Digital Radio Antenna (U2K)
12	Cellular Navigation (UE1) and Digital Radio Antenna (U2K)
13	Onstar Button Assembly
14	Inflatable Restraint I/P Module Indicator
15	Courtesy Lamp Overhead Console - Left

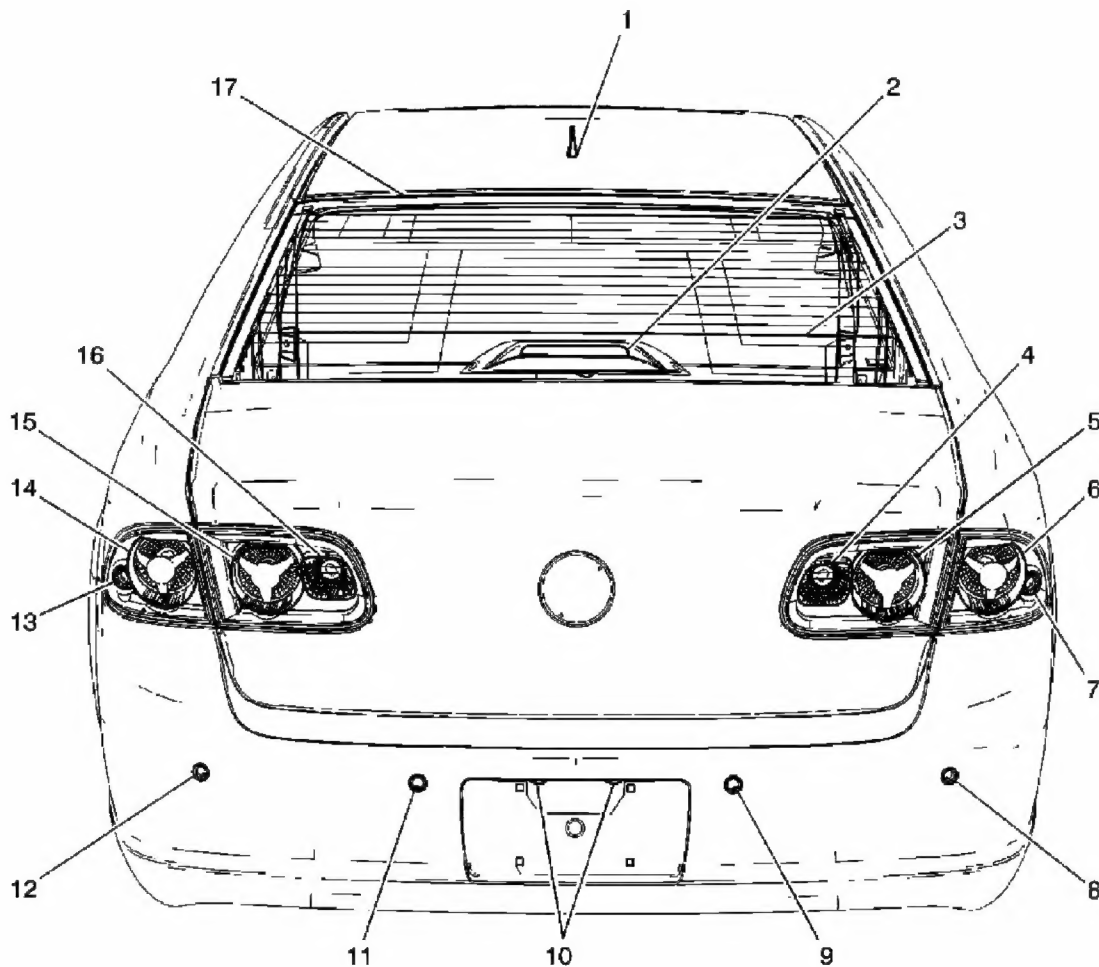


Fig. 4: View Of Rear Of Vehicle
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 4

Callout	Component Name
1	Cellular Navigation (UE1) and Digital Radio Antenna (U2K)
2	Center High Mounted Stop Lamp (CHMSL)
3	Rear Window Defogger
4	Backup Lamp - RR
5	Tail Lamp - Right Auxiliary

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

Callout	Component Name
7	Map/Navigation (UE1) and Digital Radio Antenna (U2K)
8	Object Alarm Sensor - RR Corner (UFR/SL)
9	Object Window Sensor - RR Middle (UFR)
10	Backup Lamps - RR
11	Object Alarm Sensor - Auxiliary Middle (UFR)
12	Object Alarm Sensor - LR Corner (UFR)
13	Marker Lamp - LR
14	Stop/Turn Signal Lamp - LR
15	Tail Lamp - Left Auxiliary
16	Backup Lamp - LR
17	Radio Rear Glass Antenna

STATIONARY WINDOWS CONNECTOR END VIEWS

Inside Rearview Mirror

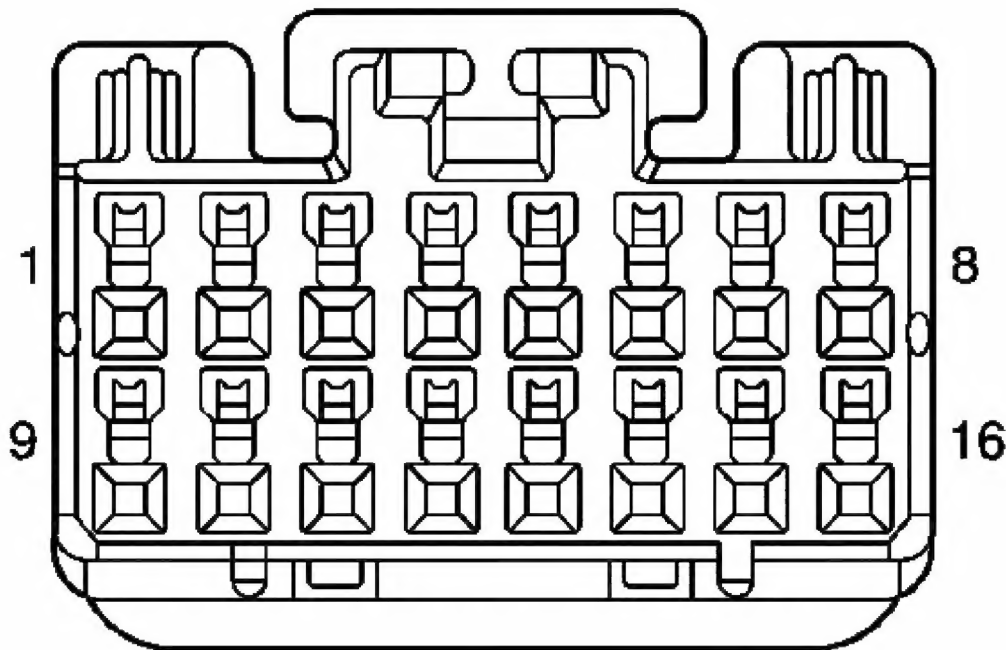


Fig. 5: Inside Rearview Mirror Connector End View
 Courtesy of GENERAL MOTORS CORP.

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Stationary Windows Connector End Views**Connector Part Information**

- OEM: 917981-2
- Service: 15306351
- Description: 16-Way F 0.040/0.070 HYBRID I/O (BK)

Terminal Part Information

- Pins: 5, 8, 9, 11, 12, 13, 14, 15, 16
- Terminal/Tray: 175266-5/15
- Core/Insulation Crimp: Pins 1, 3, 5, 8, 9, 11, 12, 13, 14, 15, 16 - J/J
- Core/Insulation Crimp: Pins 8, 9 - K/K
- Release Tool/Test Probe: 15315247/J-35616-16 (L-GN)

Inside Rearview Mirror

Pin	Wire Color	Circuit No.	Function
1-4	-	-	Not Used
5	GY/BN	1690	Automatic Day/Night Mirror Signal
6-7	-	-	Not Used
8	BK	850	Ground
9	L-GN	24	Backup Lamp Supply Voltage
10	-	-	Not Used
11	D-GN/WH	2514	Keypad Signal
12	L-GN/BK	2515	Keypad Supply Voltage
13	YE	643	Ignition Positive Voltage
14	YE/BK	2516	Keypad Green LED Signal
15	BN/WH	2517	Keypad Red LED Signal
16	PK/BN	1691	Automatic Day/Night Mirror Low Reference

Rear Window Defogger C1

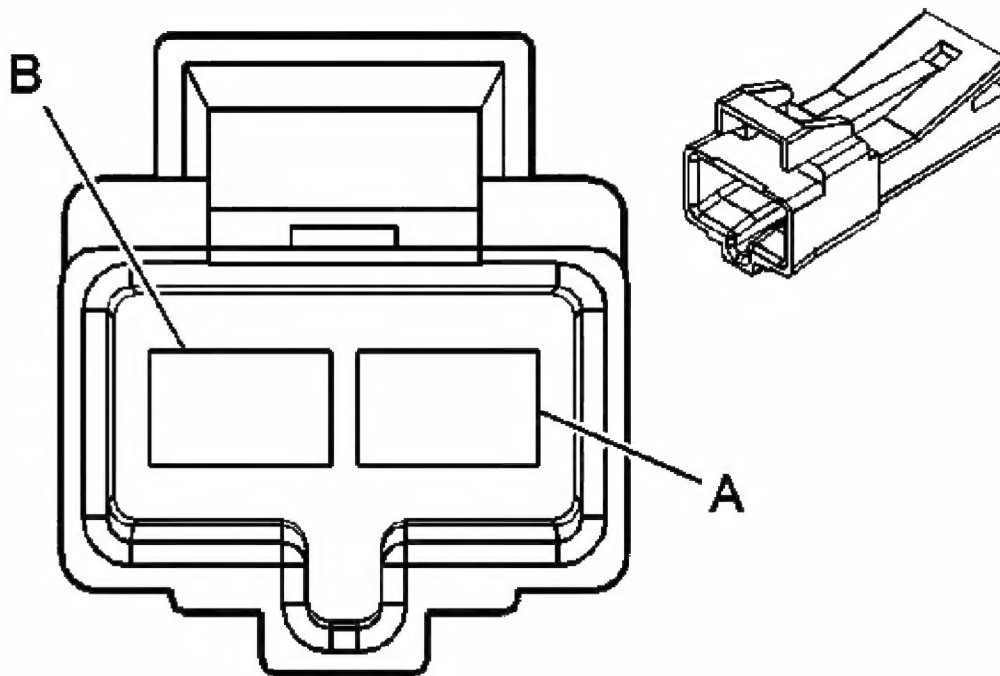


Fig. 6: Rear Window Defogger C1 Connector End View
 Courtesy of GENERAL MOTORS CORP.

Stationary Windows Connector End Views

Connector Part Information

- OEM: 12064750
- Service: 12101935
- Description: 2-Way M Metri-Pack 480 Series (BK)

Terminal Part Information

- Terminal/Tray: 12033820/2
- Core/Insulation Crimp: B/G
- Release Tool/Test Probe: 12094430/J-35616-40 (BU)

Rear Window Defogger C1

Pin	Wire Color	Circuit No.	Function
A	PU	293	Rear Defog Element Supply Voltage
B	BK	2050	Ground

Rear Window Defogger C2

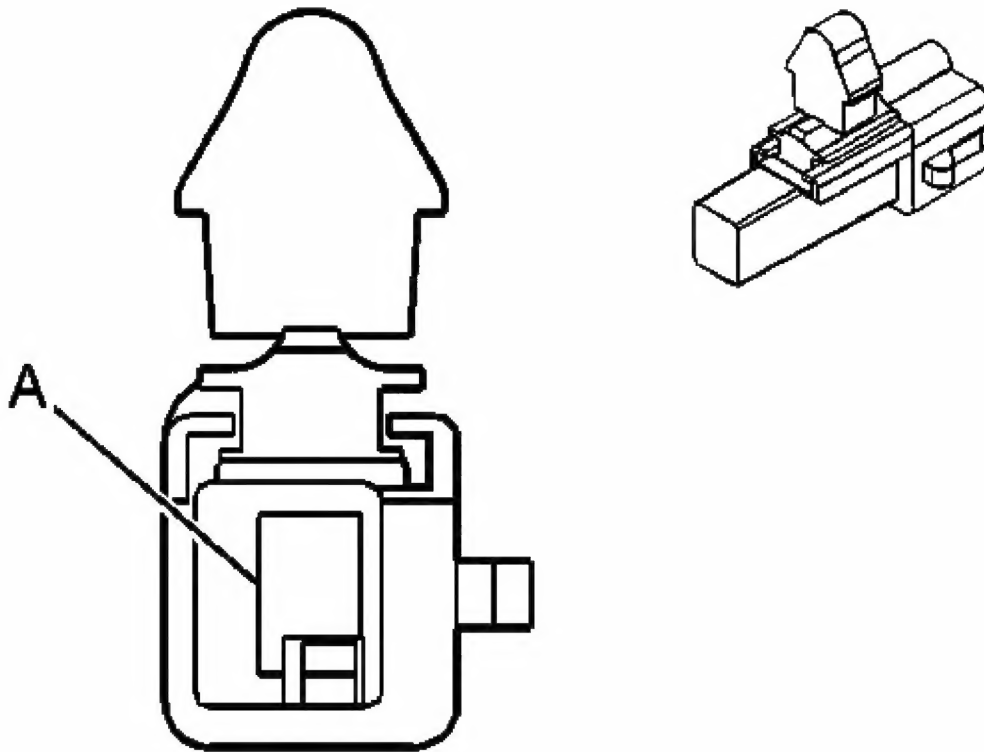


Fig. 7: Rear Window Defogger C2 Connector End View
Courtesy of GENERAL MOTORS CORP.

Stationary Windows Connector End Views

Connector Part Information

- OEM: 12065652
- Service: 12101893
- Description: 1-Way M Metri-Pack 480 Series (BK)

Terminal Part Information

- Terminal/Tray: 12033820/2
- Core/Insulation Crimp: B/G
- Release Tool/Test Probe: 12094430/J-35616-40 (BU)

Rear Window Defogger C2

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

Pin	Wire Color	Circuit No.	Function
A	OG	1950	Ground

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - STATIONARY WINDOWS

Begin diagnosis with the **Diagnostic System Check - Vehicle** in Vehicle DTC Information. The Diagnostic System Check will provide the following information:

- The identification of the control modules which command the system
- The ability of the control modules to communicate through the serial data circuit
- The identification of any stored diagnostic trouble codes (DTCs) and their status

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

SCAN TOOL OUTPUT CONTROLS

Body Control Module

Scan Tool Output Control	Additional Menu Selection(s)	Description
Rear Defogger Relay	Miscellaneous Test	The Body Control Module actuates the Rear Window Defogger relay. The rear window defogger grid should become warm.

SCAN TOOL DATA LIST

Body Control Module

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Ignition ON/Engine OFF			
Rear Defog Relay	Outputs	On/Off	Off

SCAN TOOL DATA DEFINITIONS

Body Control Module

Rear Defog Relay

The scan tool displays On/Off. When the rear window defogger switch is depressed, the body control module energizes the Rear Window Defogger relay by grounding the control circuit of the relay, which the scan tool displays as On.

DTC B0283**Circuit Description - w/Manual Air Temperature Control (RPO C60)**

The body control module (BCM) controls the rear window Defog feature through the rear window defog relay. The rear window defog switch, which is hard wired to the BCM, provides the request signal to the BCM. When the ignition switch is in Run, the BCM supplies battery voltage to one side of the rear defog switch contacts, via the rear defog switch signal circuit. When the defog switch button is pressed, the switch contacts close the circuit to ground and the BCM interprets the flow of voltage as a request to turn the rear defog feature ON. The BCM then provides battery voltage to one side of the rear window defog relay coil, via the rear defog relay control circuit, while the other side of the relay coil is grounded to G302. The rear defog indicator LED circuit, which is spliced into the rear defog relay control circuit, is simultaneously provided battery voltage to illuminate the indicator LED.

Circuit Description - w/Automatic Air Temperature Control (RPO C68)

The BCM controls the rear window defog feature through the rear window defog relay. However, the rear window defog switch is not hard wired to the BCM. When the ignition switch is in Run and the defog switch button is pressed, the HVAC control module interprets the switch input and sends a GMLAN message to the BCM to turn the rear window defog feature ON. In response to the GMLAN message, the BCM provides battery voltage to one side of the rear window defog relay coil via the rear defog relay control circuit, while the other side of the rear window defog relay coil is grounded to G302. The HVAC control module internally supplies the voltage to turn on the rear defog indicator LED.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B0283 Electric Rear Defrost Circuit

This vehicle has DTCs which include DTC Symptoms. For more information on DTC Symptoms, refer to **DTC Symptom Description** .

DTC B0283

DTC Symptom	DTC Symptom Descriptor
02	Short to Ground
05	Short to Battery or Open

Conditions for Running the DTC

The system voltage must be between 9-16 volts.

Conditions for Setting the DTC

The specific condition causing the DTC to set will vary depending upon which HVAC air control system the vehicle is equipped with.

If the vehicle is equipped with RPO C60, the DTC may be set by the following conditions:

- The BCM detects a short to ground or a short to voltage in the rear defog relay control circuit when the BCM is trying to energize the relay.
- The BCM detects a short to ground or a short to voltage in the rear defog indicator supply voltage circuit.
- The condition above must be present for more than 1 second.

If the vehicle is equipped with RPO C68, the DTC may be set by the following conditions:

- The BCM detects a short to ground, a short to voltage or an open in the rear defog relay control circuit when the BCM is trying to energize the relay.
- The BCM detects an open in the ground circuit of the rear defog relay coil.
- The condition above must be present for more than 1 second.

Action Taken When the DTC Sets

- The BCM stores DTC B0283 in memory.
- The rear window defog will not operate.

Conditions for Clearing the DTC

- A current DTC clears when the malfunction is no longer present.
- A history DTC clears when the module ignition cycle counter reaches the reset threshold, without a repeat of the malfunction.

Diagnostic Aids

On vehicles equipped with either C60 or C68, a short to voltage or a short to ground in the rear defog relay control circuit will set DTC B0283. However, an open in this circuit will cause DTC B0283 to set on vehicles with C68, but not on vehicles with C60.

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2: For vehicles equipped with RPO C68, this step verifies that the rear window defog relay ground circuit is not the cause of the DTC. On vehicles equipped with RPO C60, an open in this circuit will not cause the DTC to set.

3: This step will determine if the rear defog relay control circuit is shorted to voltage. However, on vehicles equipped with RPO C60, the short to voltage may be in either the

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

rear defog relay control circuit or in the rear defog indicator supply voltage circuit, since these 2 circuits are spliced together within the BCM.

8: This step will determine if the rear defog relay control circuit is shorted to ground. However, on vehicles equipped with C60, the short to ground could be in either the rear defog relay control circuit or in the rear defog indicator supply voltage circuit, since these 2 circuits are spliced together within the BCM.

14: After replacement of the BCM you must reprogram the new module for proper operation.

DTC B0283

Step	Action	Yes	No
Schematic Reference: <u>Defogger Schematics</u>			
Connector End View Reference: <u>Stationary Windows Connector End Views</u>			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to <u>Diagnostic System Check - Vehicle</u>
2	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Remove the rear window defog relay. 3. With a test lamp connected to battery voltage, probe the ground circuit terminal of the relay socket. 		
3	Does the test lamp illuminate? Turn ON the ignition, with the engine OFF. With a test lamp connected to ground, probe the rear defog relay control circuit terminal of the relay socket. Does the test lamp illuminate?	Go to Step 3	Go to Step 12
4	Is the vehicle equipped with RPO C60?	Go to Step 4	Go to Step 5
5	<ol style="list-style-type: none"> 1. Install a scan tool. 2. With the test lamp connected to ground, probe the rear defog relay control circuit terminal of the relay socket. 3. With the scan tool, command the rear defog relay ON then OFF. 	Go to Step 6	Go to Step 7

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

Step	Does the test lamp Audio ON and OFF?	Go to Step 10	Go to Step 8
Schematic	Reference: <u>Defogger Schematics</u>		
Connector	End View Reference: <u>Stationary Windows Connector End Views</u>		
1 6	Did you perform the Diagnostic System Check - Vehicle? <ul style="list-style-type: none"> • Rear defog relay control circuit • Rear defog indicator supply voltage circuit 	Go to Step 2	Go to Diagnostic System Check Vehicle
7	1. Turn OFF the ignition. 2. Remove the rear window defog relay. Did you find and correct the condition? Test the rear defog relay control circuit for a short to voltage. Refer to Circuit Testing . Did you find and correct the condition? Test the following applicable circuits for a short to ground: <ul style="list-style-type: none"> • Rear defog relay control circuit • Rear defog indicator supply voltage circuit 	Go to Step 15	Go to Step 11
8		Go to Step 15	Go to Step 11
9	Refer to Circuit Testing . Did you find and correct the condition? Test the rear defog relay control circuit for an open. Refer to Circuit Testing . Did you find and correct the condition?	Go to Step 15	Go to Step 9
10	Inspect for poor connections and terminal damage at the relay socket. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs . Did you find and correct the condition?	Go to Step 15	Go to Step 13
11	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs . Did you find and correct the condition?	Go to Step 15	Go to Step 14
12	Repair the open in the ground circuit. Refer to Wiring Repairs .		-

2006 Buick Lucerne CXS

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13	<p>Did you complete the repair? With a test lamp connected to battery voltage, probe the defogger relay circuit terminal of the relay socket. Did the test lamp illuminate?</p>	<p>Go to Step 15 Go to Step 15</p>	-
14	<p>Replace the BCM. Refer to Control Module References for replacement. Does the test lamp illuminate?</p>	Go to Step 3	Go to Step 1
3	<p>Turn ON the ignition with the engine OFF. Did you complete the replacement? With a test lamp connected to ground, probe the rear defog relay control circuit terminal of the relay socket.</p>	Go to Step 15	-
15	<p>1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the conditions for Running the DTC as specified in the supporting text.</p>	Go to Step 4	Go to Step 5
4	<p>Is the vehicle equipped with RPO C60?</p>	Go to Step 6	Go to Step 7
	<p>1. Install a scan tool. Does the DTC reset? 2. With the test lamp connected to</p>	Go to Step 2	System OK

SYMPTOMS - STATIONARY WINDOWS

IMPORTANT: Review the automatic day-night mirror system description and operation in order to familiarize yourself with the system functions. Refer to Automatic Day-Night Mirror Description and Operation.

The following steps must be completed before using the symptom tables.

1. Perform the **Diagnostic System Check - Vehicle** in Vehicle DTC Information before using the symptom tables in order to verify that all of the following are true:
 - There are no DTCs set.
 - The control module(s) can communicate via GMLAN serial data.
2. Review the rear window defogger system description and operation in order to familiarize yourself with the system functions. Refer to **Rear Window Defogger Description and Operation**.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the rear window defogger or the automatic day-night feature of the inside rearview mirror. Refer to **Checking Aftermarket Accessories** in Wiring Systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- **Rear Window Defogger Inoperative**
- **Defogger Grid Lines Diagnosis**
- **Automatic Day-Night Mirrors Inoperative**
- **Mirror Compass Display Inoperative or Inaccurate**

REAR WINDOW DEFOGGER INOPERATIVE

Test Description

The number below refers to the step number on the diagnostic table.

5: Listen for an audible click when the REAR DEFOG relay operates. Command both the ON and OFF states of the REAR DEFOG relay. Repeat the commands as necessary.

Rear Window Defogger Inoperative

Step	Action	Yes	No
Schematic Reference: <u>Defogger Schematics</u> Connector End View Reference: <u>Stationary Windows Connector End Views</u>			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to <u>Diagnostic System Check - Vehicle</u>
2	IMPORTANT: Make sure that the park or head lights are turned OFF. The backlighting will effect the illumination of the rear window defogger indicator. 1. Start the engine. 2. Depress the rear window defogger switch. 3. Observe the rear window defogger indicator on the HVAC control module.		

2006 Buick Lucerne CXS

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3	<p>Does the rear window defogger indicator illuminate?</p> <p>Connect a test lamp between the rear window defogger grid and ground.</p> <p>Does the test lamp illuminate?</p>	Go to Step 3	Go to Step 12
4	<p>Connect a test lamp between the left side of the rear window defogger grid and the right side of the rear window defogger grid.</p> <p>Does the test lamp illuminate?</p>	<p>Go to Step 4</p> <p>Go to Testing for Intermittent Conditions and Poor Connections</p>	Go to Step 5
5	<p>Command the REAR DEFOG relay ON and OFF, by depressing the rear defogger switch on the HVAC control module.</p> <p>Do you hear a click when you command the REAR DEFOG relay ON and OFF?</p>		Go to Step 19
6	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the REAR DEFOG relay. 3. Start the engine. 4. Connect a test lamp between the supply voltage circuit of the REAR DEFOG relay coil and ground. 		Go to Step 6
	Does the test lamp illuminate?	Go to Step 7	Go to Step 11
7	<ol style="list-style-type: none"> 1. Connect a test lamp between the supply voltage circuit of the REAR DEFOG relay coil and the control circuit of the REAR DEFOG relay. 2. Depress the rear window defogger switch. 		
	Does the test lamp illuminate?	Go to Step 17	Go to Step 12
	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the REAR DEFOG relay. 3. Connect a test lamp between the 		

2006 Buick Lucerne CXS

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Step	battery positive voltage circuit of the REAR DEFOG relay switched input and ground.	Yes	No
Schematic Reference: Defogger Schematics Connector End View Reference: Stationary Windows Connector End Views			
1	Did you perform the Diagnostic System Check - Vehicle? 1. Connect a 30-amp fused wire between the battery positive	Go to Step 9	Go to Step 13 Diagnostic System Check Vehicle
9	IMPORTANT: Make sure that the park or head lights are turned OFF. The switch light output will affect the illumination of the rear window defogger indicator. voltage circuit of the REAR DEFOG relay switched input and ground.		
2	2. Connect a test lamp between the rear window defogger grid and ground. 2. Depress the rear window defogger switch.		
10	Does the test lamp illuminate? 1. Disconnect the harness connector of the radio antenna module. 2. Connect a test lamp between the supply voltage circuit of the rear window defogger grid and ground.	Go to Step 17	Go to Step 10
3	Connect a test lamp between the rear window defogger grid and ground. Does the test lamp illuminate?	Go to Step 14	Go to Step 21
11	Test the supply voltage circuit of the REAR DEFOG relay coil for an open or short to ground. Refer to Circuit Testing and Wiring Repairs . Did you find and correct the condition?	Go to Testing for Intermittent Conditions and Poor Connections	Go to Step 16
12	Test the control circuit of the REAR DEFOG relay for an open or short to battery positive voltage. Refer to Circuit Testing and Wiring Repairs . Did you find and correct the condition?	Go to Step 25	Go to Step 15
13	Test the battery positive voltage circuit of the REAR DEFOG relay switched input for an open or short to ground. Refer to Circuit Testing and Wiring Repairs . Did you find and correct the condition?	Go to Step 25	Go to Step 20
	Test the supply voltage circuit of the		

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

5 14	<p>Command the REAR DEFOG relay ON and OFF by depressing the rear defogger switch on the HVAC control module. Do you see the REAR DEFOG relay command? Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs and OFF?</p>	Go to Step 8	Go to Step 6
15 6	<p>Did you find and correct the condition?</p> <ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the REAR DEFOG relay. 3. Start the engine. 4. Connect a test lamp between the supply voltage circuit of the REAR DEFOG relay coil and ground. <p>Inspect for a poor connection at the harness connector of the body control module (BCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs.</p>	Go to Step 25	Go to Step 18
	<p>Did you find and correct the condition?</p> <p>Does the test lamp illuminate?</p>	Go to Step 25	Go to Step 22
16	<p>Connect a test lamp between the supply voltage circuit of the REAR DEFOG relay coil and the control circuit of the REAR DEFOG relay. Inspect for a poor connection at the REAR DEFOG relay. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs.</p>	Go to Step 7	Go to Step 1
7 17	<p>Does the test lamp illuminate?</p>	Go to Step 25	Go to Step 23
	<p>Inspect for a poor connection at the REAR DEFOG relay. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs.</p>	Go to Step 17	Go to Step 1
	<p>Did you find and correct the condition?</p>	Go to Step 25	Go to Step 24
18 8	<p>Inspect for a poor connection at the harness connector of the radio antenna relay. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs.</p> <ol style="list-style-type: none"> 3. Connect a test lamp between the battery positive voltage circuit of the REAR DEFOG relay switched input and ground. 	Go to Step 25	Go to Step 24 to
	<p>Repair an open or high resistance in the ground circuit of the rear window defogger grid. Refer to Wiring Repairs.</p>	Go to Step 9	Go to Step 1
19	<p>Connect a 30-amp fused wire between the battery positive voltage circuit of the REAR DEFOG relay switched input and the relay switched output to the supply voltage circuit of the rear window defogger grid. Refer to Wiring Repairs.</p>	Go to Step 25	-
9 20	<p>Repair the short to ground in the supply voltage circuit of the rear window defogger grid. Refer to Wiring Repairs.</p>	Go to Step 25	-
	<p>Did you complete the repair?</p>	Go to Step 25	-
	<p>Repair an open or high resistance in the</p>		

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

21	supply defogger circuit of the rear window defogger grid. Refer to Wiring Repairs . 2. Connect a test lamp between the rear window defogger grid and ground. Did you complete the repair? Replace the HVAC control module. Refer to Control Module References .	Go to Step 25 Go to Step 17	- Go to Step 16
22	for replacement, setup and programming. 1. Disconnect the harness connector of the radio antenna module. Did you complete the replacement? 2. Connect a test lamp between the BCM. Refer to Control Module References for replacement.	Go to Step 25	-
10	Replace the supply voltage circuit of the rear window defogger grid and ground.	Go to Step 25	Go to Step 2
23	setup and programming. Did you complete the replacement? Does the test lamp illuminate?	Go to Step 25 Go to Step 14	Go to Step 2
24	Replace the REAR DEFOG relay. Test the supply voltage circuit of the REAR DEFOG relay. Refer to Relay Replacement (Within an Electrical Center) or Relay Replacement (Attached to Wire Harness) . Find and correct the condition?	Go to Step 25	Go to Step 16
	Did you complete the replacement? Test the control circuit of the REAR DEFOG relay for an open or short to battery positive voltage. Refer to Circuit Testing and Wiring Repairs .	Go to Step 25	-
45	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

DEFOGGER GRID LINES DIAGNOSIS

1. Start the engine.
2. Activate the rear window defogger system.
3. Connect a test lamp to ground.

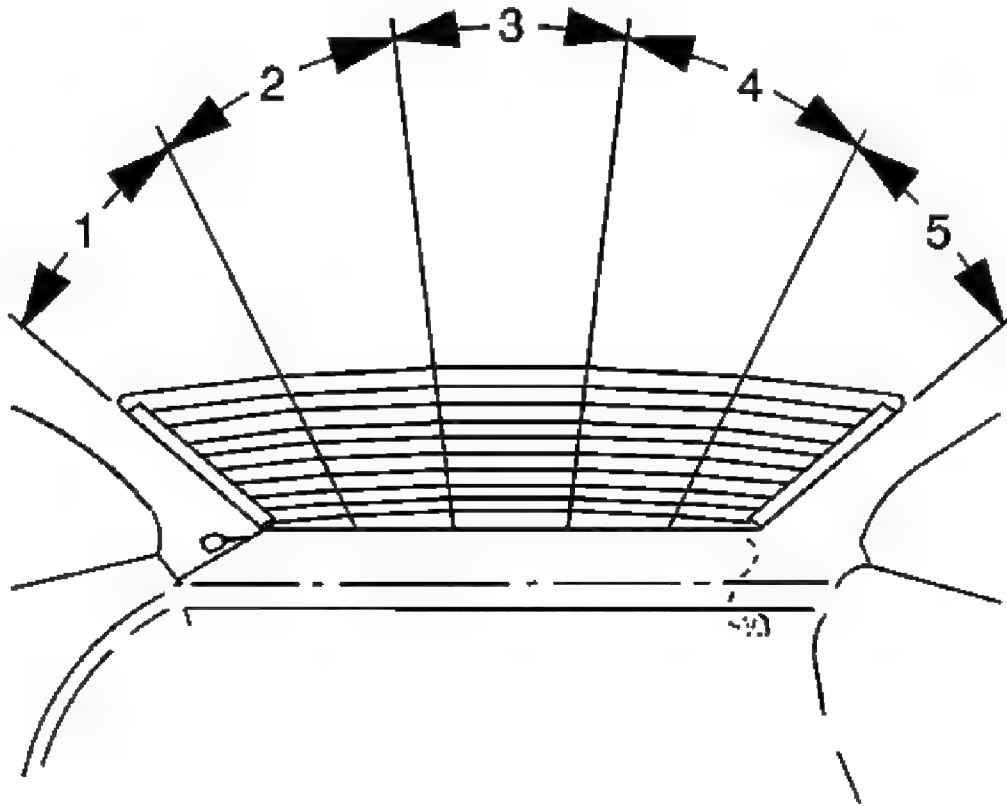


Fig. 8: Identifying Defogger Grid Line Zones
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The test lamp brilliance will decrease proportionately to the increased resistance in the grid line as the probe is moved from the battery positive bus wire to the ground bus wire. The test lamp brilliance may vary from one window to another.

4. Move the test lamp probe from zone 5 to zone 1 along each grid line.
 - If the test lamp shows full brilliance at both ends of the grid lines, inspect for an open or poor connection in the ground circuit of the rear window defogger grid. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems.

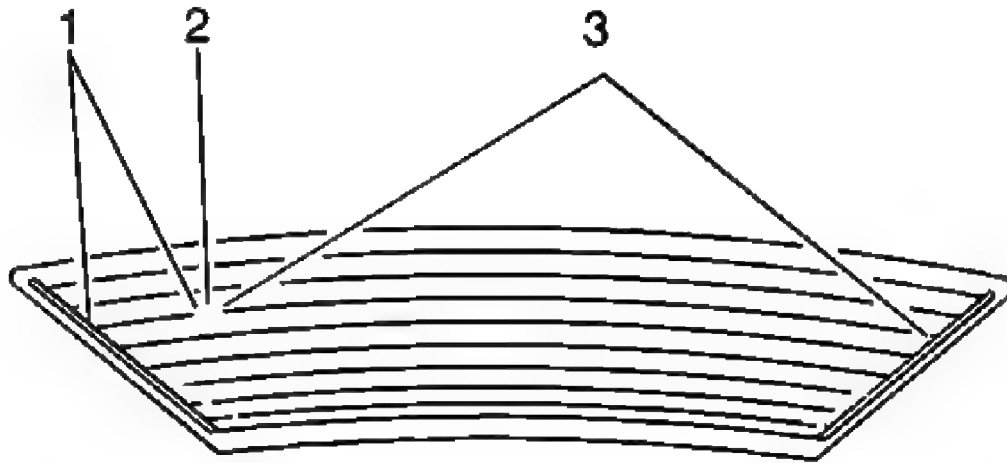


Fig. 9: Identifying Grid Line Test Locations
 Courtesy of GENERAL MOTORS CORP.

- If the test lamp goes out, test the grid line in at least 2 places (1, 3) to eliminate the possibility of bridging the open (2) in the grid line.
5. If an open is discovered replace the rear window. Refer to **Rear Window Replacement**.

AUTOMATIC DAY-NIGHT MIRRORS INOPERATIVE

Diagnostic Aids

The automatic day-night feature of the inside rearview mirror may not operate properly or become inoperative due to an intermittent short to battery voltage in the backup lighting system.

Automatic Day-Night Mirrors Inoperative

Step	Action	Value(s)	Yes	No
Schematic Reference: <u>Inside Rearview Mirror Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u>				
1	Did you perform the Diagnostic System Check - Vehicle?	-	Go to Step 2	Go to <u>Diagnostic System Check - Vehicle</u>
	1. Turn ON the ignition, with the engine OFF.			

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

2	<ol style="list-style-type: none"> 2. Turn ON the automatic day-night feature of the inside rearview mirror. 3. Cover the sensor on the inside rearview mirror back, facing the front window. 4. Shine a bright light into the sensor on the inside rearview mirror face, facing the rear window. <p>Does the inside rearview mirror darken?</p>	-	Go to Diagnostic Aids	Go to Step 3
3	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the harness connector of the inside rearview mirror. 3. Measure the resistance between the ground circuit of the inside rearview mirror and ground. <p>Is the resistance less than the specified value?</p>			
4	<ol style="list-style-type: none"> 1. Turn ON the ignition, with the engine OFF. 2. Measure the voltage between the ignition voltage circuit and the ground circuit of the inside rearview mirror. <p>Is the voltage within the specified range?</p>	9-16 V	Go to Step 5	Go to Step 10
	<ol style="list-style-type: none"> 1. Place the transmission in PARK. 2. Measure the voltage between the backup lamp 			

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

Step	supply voltage circuit and the ground circuit of the inside rearview mirror	Value(s)	Yes	No
Schematic Reference: <u>Inside Rearview Mirror Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u>				
5	Did you perform the Diagnostic System Check - Vehicle?	0.5 V		Go to Backup Diagnostic System Check - Vehicle
1	Is the voltage less than the specified value?	-	Go to Step 6 Go to Step 2	
6	<ol style="list-style-type: none"> Place the transmission in REVERSE. Measure the voltage between the backup lamp supply voltage circuit and the ground circuit of the inside rearview mirror. <p>Is the voltage within the specified range?</p>	9-16 V	Go to Step 8	Go to Step 7
7	<p>Test the backup lamp supply voltage circuit of the inside rearview mirror for an open or short to ground. Refer to Circuit Testing and Wiring Repairs .</p> <p>Did you find and correct the condition?</p>	-	Go to Step 12	Go to Backup Lamps Malfunction
8	<p>Inspect for poor connections at the harness connector of the inside rearview mirror. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs .</p> <p>Did you find and correct the condition?</p>	-	Go to Step 12	Go to Step 11
9	<p>Repair an open or high resistance in the ground circuit of the inside rearview mirror. Refer to Wiring Repairs .</p> <p>Did you complete the repair?</p>	-	Go to Step 12	-
	Repair an open or short to ground in the ignition voltage			

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

10	<p>1. Turn ON the ignition, with the engine OFF.</p> <p>2. Refer to Wiring Repairs.</p> <p>3. Verify the operation of the automatic day-night feature of the inside rearview mirror.</p> <p>Did you complete the repair?</p>	-	Go to Step 12	-
11	<p>1. Replace the inside rearview mirror. Refer to Inside Rearview Mirror Replacement.</p> <p>2. Cover the sensor on the inside rearview mirror back, facing the front window.</p> <p>3. Did you complete the replacement?</p> <p>4. Shine a bright light into the sensor on the inside rearview mirror face.</p>	-	Go to Step 12	-
12	<p>Operate the system in order to verify the repair.</p> <p>1. Operate the inside rearview mirror face, facing the rear window.</p> <p>Did you correct the condition?</p>	-	System OK	Go to Step 2

MIRROR COMPASS DISPLAY INOPERATIVE OR INACCURATE

Mirror Compass Display Inoperative or Inaccurate

Step	Action	Yes	No
Schematic Reference: <u>Inside Rearview Mirror Schematics</u> Connector End View Reference: <u>Stationary Windows Connector End Views</u>			
1	Did you review the compass operation of the inside rearview mirror?	Go to Step 2	Go to <u>Automatic Day-Night Mirror Description and Operation</u>
2	Does the automatic day-night feature of the inside rearview mirror operate correctly?	Go to Step 3	Go to <u>Automatic Day-Night Mirrors Inoperative</u>
3	<ol style="list-style-type: none"> Turn ON the ignition, with the engine OFF. Turn ON the compass. Verify that the compass has one of the following conditions: <ul style="list-style-type: none"> An incorrect reading on the display. The letter "C" or "CAL" is displayed. 		Go to <u>Testing for Intermittent Conditions and</u>

2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

	<ul style="list-style-type: none"> • The compass display is blank. 		Poor
	Does the compass have one of the conditions mentioned above?	Go to Step 4	<u>Connections</u> in Wiring Systems
4	Is the compass display totally blank?	Go to Step 8	Go to Step 5
5	Is the letter "C" or "CAL" displayed on the mirror?	Go to Step 6	Go to Step 7
6	Perform the compass calibration procedure. Refer to <u>Inside Rearview Mirror Programming and Setup</u> in Programming and Setup. Is the compass accurate and operating properly?	Go to Step 10	Go to Step 7
7	Perform the compass magnetic variation adjustment procedure. Refer to <u>Inside Rearview Mirror Programming and Setup</u> in Programming and Setup. Is the compass accurate and operating properly?	Go to Step 10	Go to Step 8
8	Inspect for poor connections at the harness connector of the inside rearview mirror. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 10	Go to Step 9
9	Replace the inside rearview mirror. Refer to <u>Control Module References</u> in Computer/Integrating Systems for replacement, setup and programming. Did you complete the replacement?	Go to Step 10	-
10	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

REPAIR INSTRUCTIONS**STATIONARY WINDOW REVEAL MOLDING REPAIR****Removal Procedure**

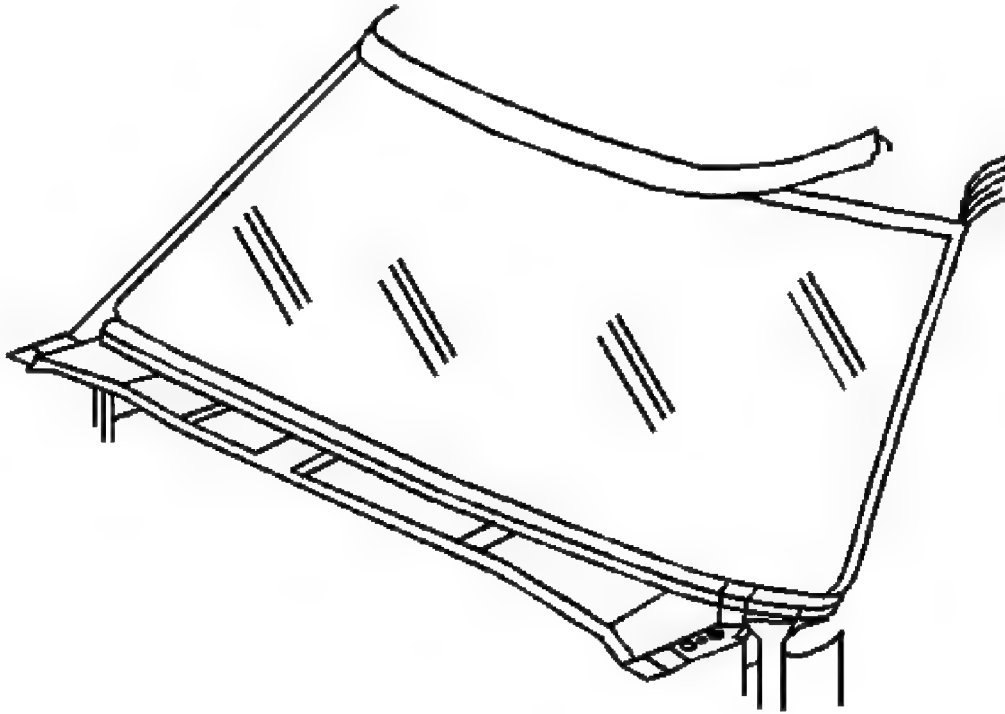


Fig. 10: View Of Window Reveal Molding
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to GLASS AND SHEET METAL HANDLING CAUTION .

IMPORTANT: The window reveal molding fills the cavity between the body and window. If the reveal molding is stretched or damaged, it cannot be reused and it must be replaced.

1. Lift up on the loose area of the reveal molding.
2. Clean the top edge of the window surface and the reveal molding with a 50/50 mixture of isopropyl alcohol and water by volume on a dampened lint-free cloth.

Installation Procedure

CAUTION: Refer to Window Retention Caution .

1. Verify all primers and urethane adhesive are within expiration dates.

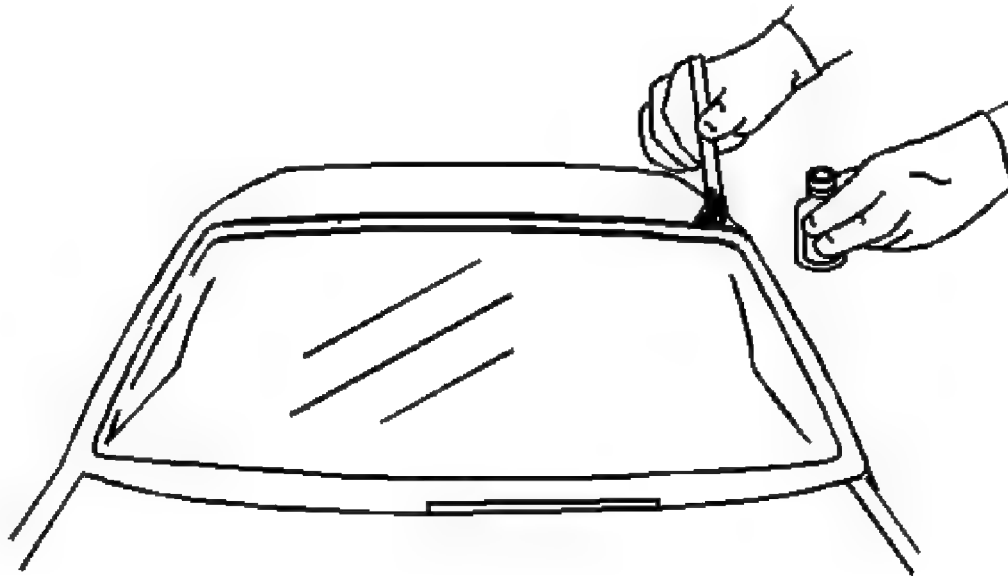


Fig. 11: Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Use care when applying the prep, clear #1, to the window. This primer dries almost instantly and may stain the viewing area of the window if not applied evenly.

2. Use a new dauber in order to apply glass prep, clear #1, to the channel area approximately 13 mm (1/2 in) to the upper edge of the window.
3. Wipe the glass primed area immediately with a clean lint-free cloth.
4. Shake the glass primer, black #2, for at least 1 minute.
5. Use a new dauber in order to apply glass primer, black #2, to the top edge of the window.

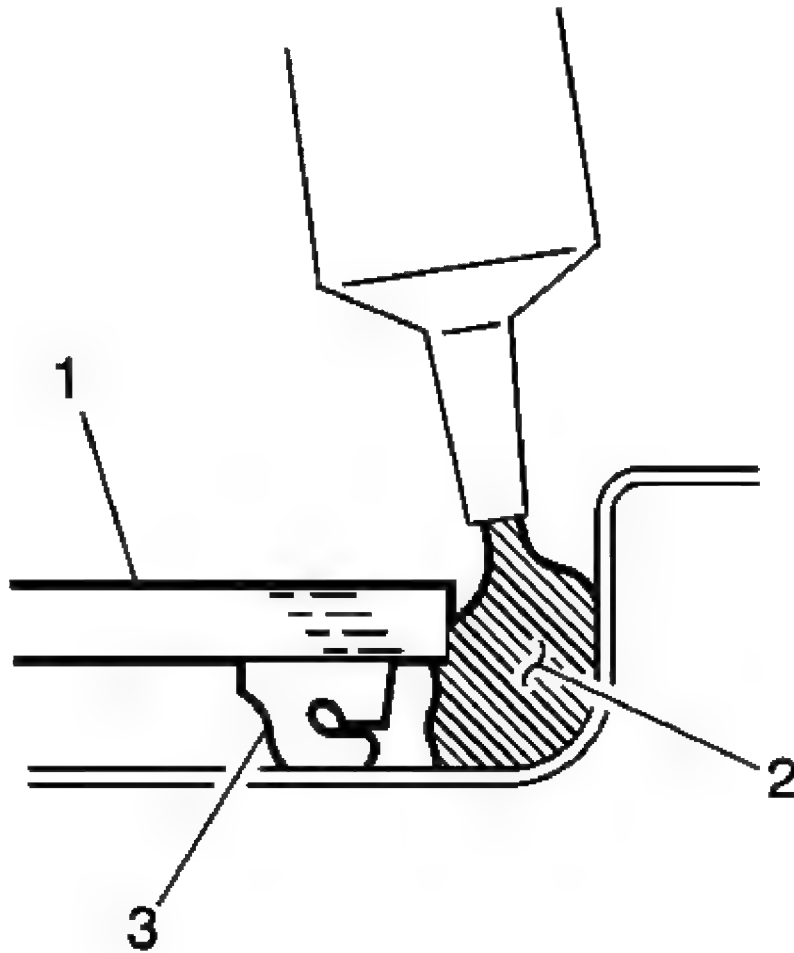


Fig. 12: Applying Urethane Adhesive Between Window & Pinch-Weld
Courtesy of GENERAL MOTORS CORP.

6. Apply a small bead of urethane adhesive (2) between the window (1) and the pinch-weld.

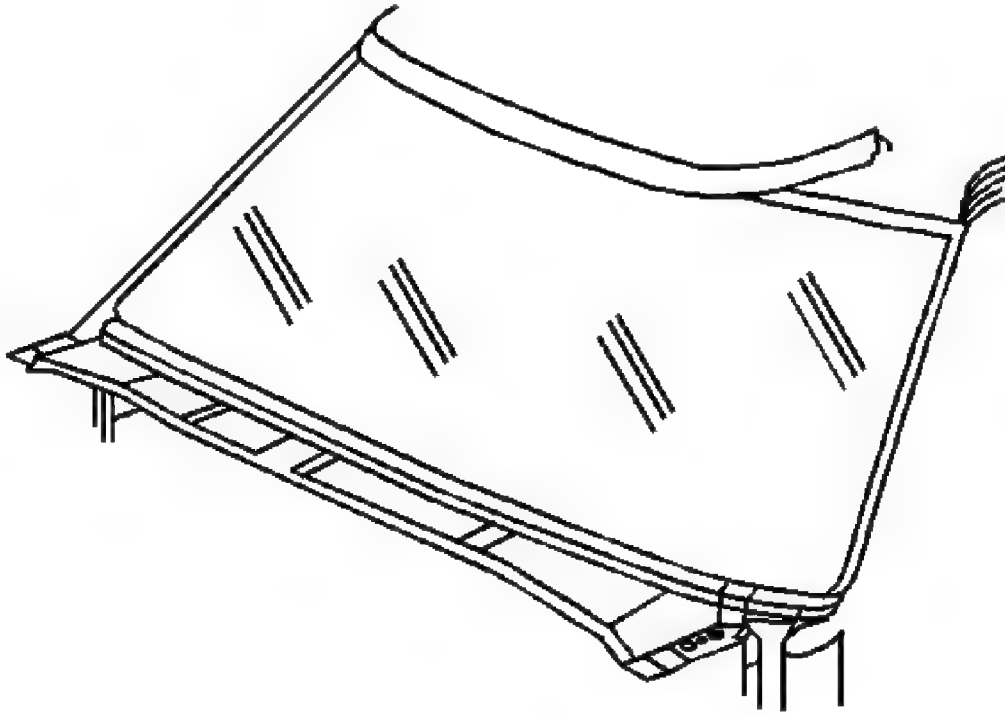


Fig. 13: View Of Window Reveal Molding
Courtesy of GENERAL MOTORS CORP.

7. Reinstall the window reveal molding.
 1. Start from the loose area and hand-press the reveal molding into place over the edge of the window.
 2. Run warm water over the reveal molding in order to speed the setup time of the urethane adhesive.
 3. Tape should be applied in order to retain the reveal molding to the window. This will maintain a flush fit with the body.
 4. The tape is to be removed after 6 hours.

INSIDE REARVIEW MIRROR REPLACEMENT

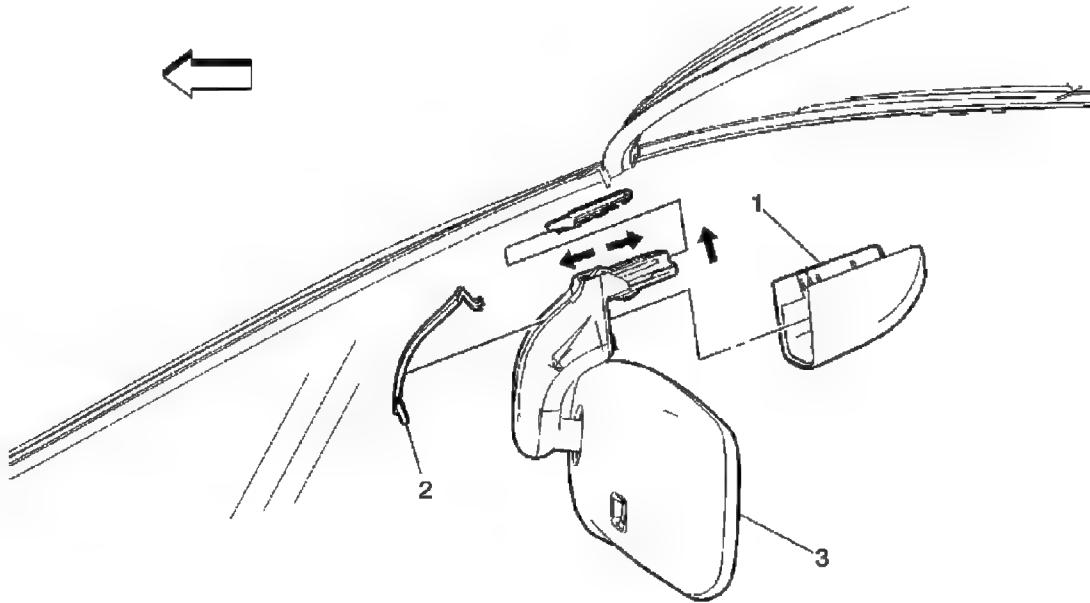


Fig. 14: Removing/Installing Inside Rearview Mirror
 Courtesy of GENERAL MOTORS CORP.

Inside Rearview Mirror Replacement

Callout	Component Name
1	Rearview Mirror Support Cover
2	Rearview Mirror Support Wire Cover Procedure: Disconnect the wiring harness from the rearview mirror.
3	Rearview Mirror Procedure: With both hands on the mirror, rock it from side to side while sliding upward, this will assist in the releasing of the mirror from the mounting tab.

REARVIEW MIRROR SUPPORT INSTALLATION

Tools Required

- Inside Mirror Adhesive Kit GM P/N 1052369 (Canadian P/N 993362) or equivalent
- Safety Razor or Utility Knife

Installation Procedure

1. Determine the location of the mirror mounting base by marking the outside of the windshield with a marking pencil where the base was previously located. If it is not clear where the base was mounted, use the following steps to determine where the base should

be installed:

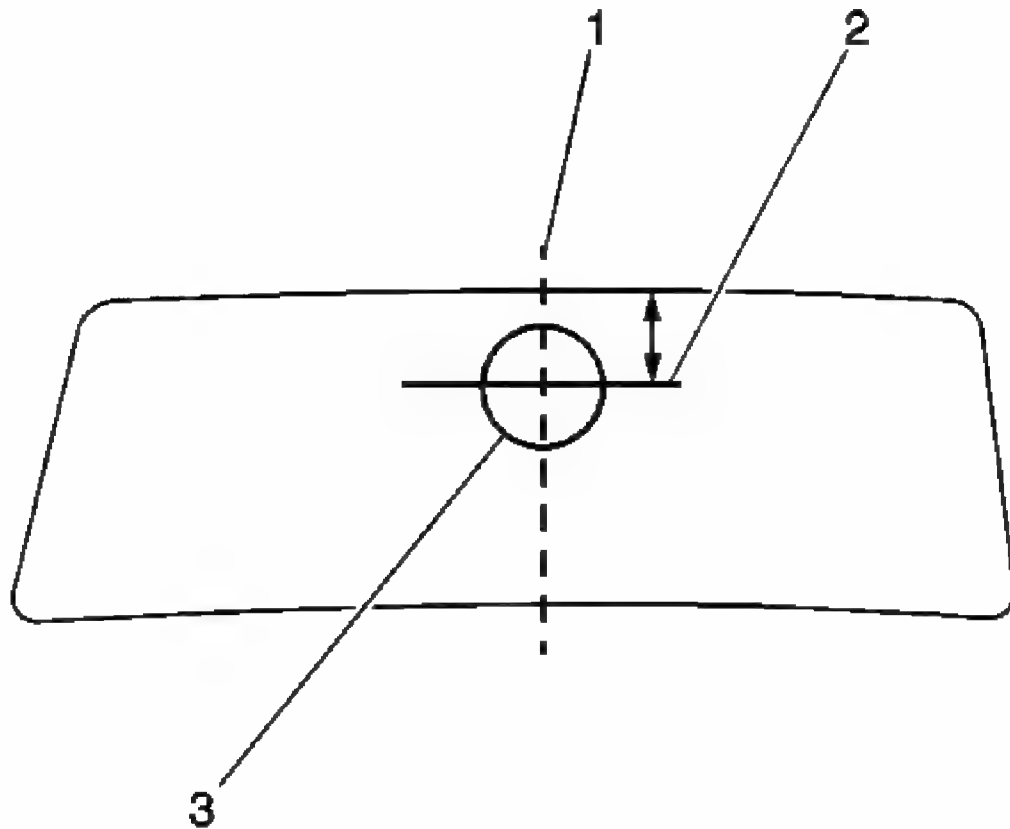


Fig. 15: Identifying Mirror Mounting Base Location
Courtesy of GENERAL MOTORS CORP.

1. Using a measuring tape, measure the distance between the windshield pillars from the base of the shade line .
2. Using a marking pencil, halfway between the windshield pillars, draw a centerline (1) on the windshield from the roof panel to the windshield base.
3. Draw a perpendicular line intersecting the centerline (2) at that location.

The top center of the mirror mounting base will be at the intersection of these lines.

2. Scrape the inside windshield thoroughly with a safety razor or utility knife in order to remove all old adhesive.
3. If reinstalling the original mounting base, place the mirror mounting base in a suitable holding device, such as a vice.

4. Scrape the mirror mounting base thoroughly with a safety razor or utility knife in order to remove all old adhesive.
5. Clean the inside windshield and the mounting surface of the mirror mounting base thoroughly with a clean cloth saturated with naphtha or a 50/50 mixture (by volume) of clean water and isopropyl alcohol.

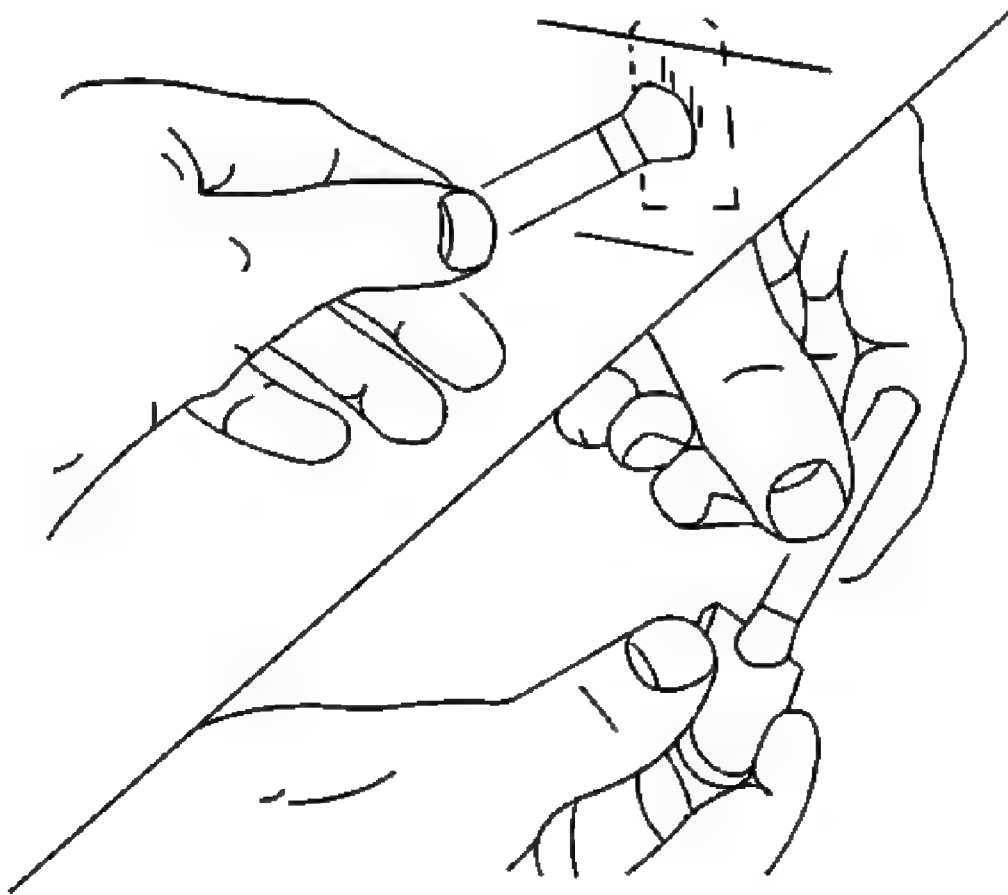


Fig. 16: Applying Adhesive To Mirror Base & Window
Courtesy of GENERAL MOTORS CORP.

6. Use Inside Mirror Adhesive Kit GM P/N 1052369 (Canadian P/N 993362) or equivalent to apply a small amount of activator to the mounting surface of the mirror mounting base.
7. Apply a small amount of activator to the windshield where the mounting base is to be installed.
8. Allow the activator to dry 5 minutes.

IMPORTANT: Do not touch the mounting surface of the mirror mounting base or the window.

9. Apply 1 drop of adhesive to the center of the mirror mounting base.

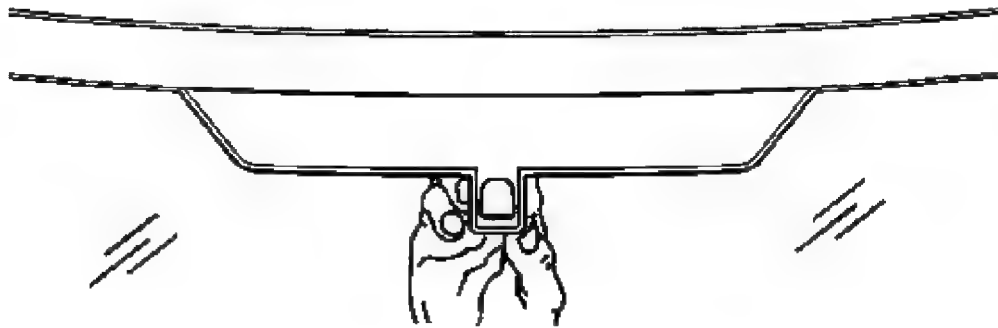


Fig. 17: Applying Mounting Base To Windshield
Courtesy of GENERAL MOTORS CORP.

10. Immediately apply the mounting base to the windshield, ensuring that the mounting base aligns correctly to the marks made on the outside of the windshield.
11. Hold the mounting base firmly in place for 1 minute.
12. Allow the adhesive to set for 15 minutes.
13. Install the mirror to the mirror mounting base and fasten, if necessary.
14. Connect the electrical connector and install the wire cover, if equipped.

WINDSHIELD REPLACEMENT

Tools Required

- **J 24402-A** Glass Sealant Cold Knife Remover. See **Special Tools**.
- **J 39032** Stationary Glass Removal Tool. See **Special Tools**.
- Urethane Adhesive Kit GM P/N 12346392 or Equivalent
- Isopropyl Alcohol or Equivalent
- Cartridge-type Caulking Gun
- Commercial-type Utility Knife
- Razor Blade Scraper
- Suction Cups

- Plastic Paddle

Removal Procedure

IMPORTANT: Before cutting out a stationary window, apply a double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

1. Open the hood.
2. Remove the windshield wiper arms and blades. Refer to **Windshield Wiper Arm Replacement** .
3. Remove the air inlet grille. Refer to **Air Inlet Grille Panel Replacement** .
4. Remove the interior windshield pillar garnish moldings. Refer to **Windshield Pillar Garnish Molding Replacement** .
5. Remove the rearview mirror. Refer to **Inside Rearview Mirror Replacement**.
6. Remove the windshield moisture rain sensor. Refer to **Windshield Outside Moisture Sensor Replacement** .

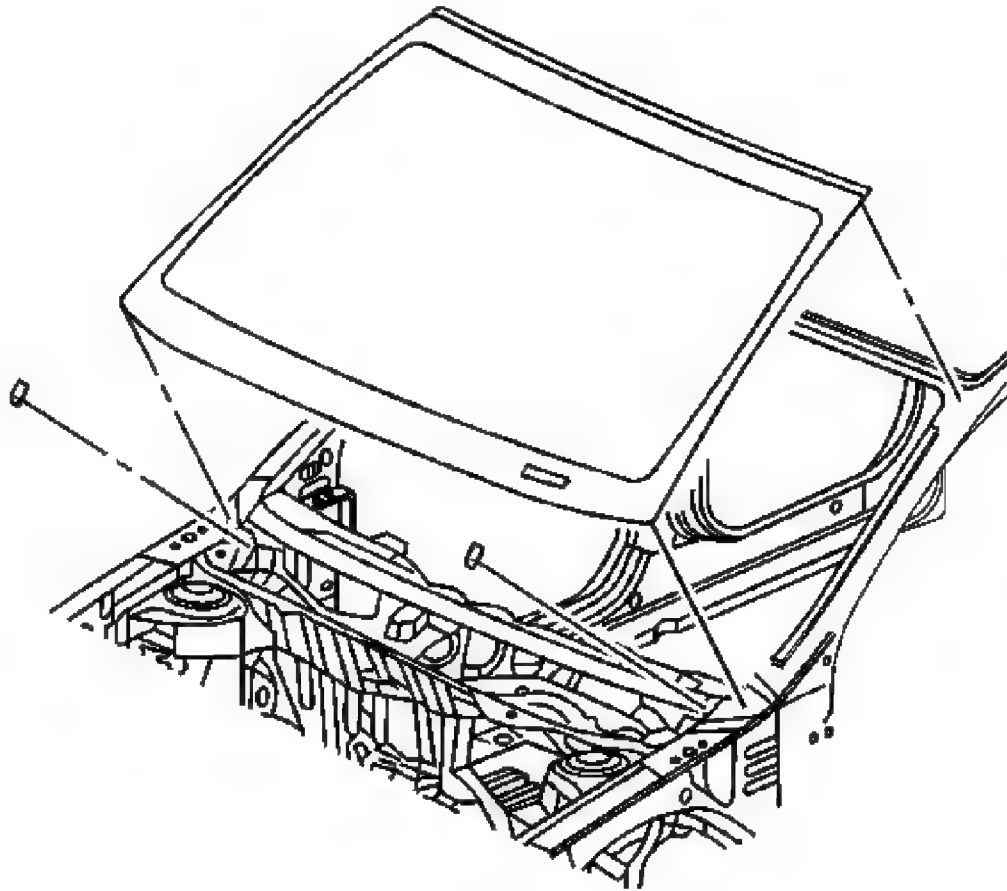


Fig. 18: View Of Windshield
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Defroster Outlet Caution .

7. Cover the following parts to protect from broken glass:
- Upper dash pad
 - Defroster outlets and A/C outlets
 - Seats and carpeting

CAUTION: Refer to Glass and Sheet Metal Handling Caution .

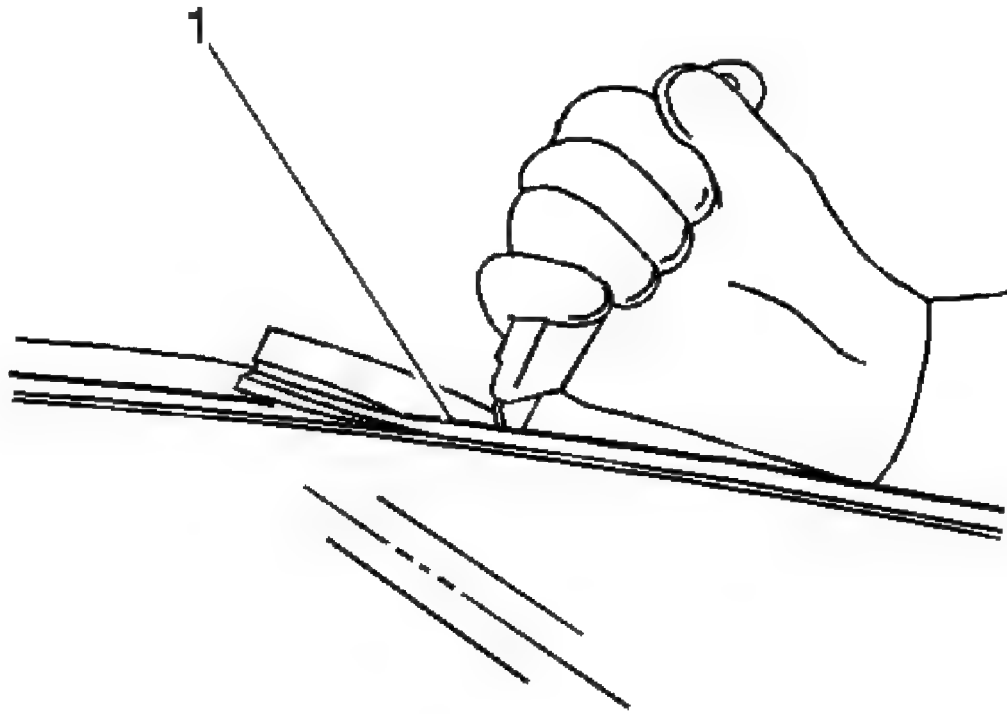


Fig. 19: Using Utility Knife To Remove Reveal Molding
Courtesy of GENERAL MOTORS CORP.

8. Using a utility knife, carefully cut the exposed reveal molding from the sides and the top edge of the windshield to access the urethane adhesive bead.

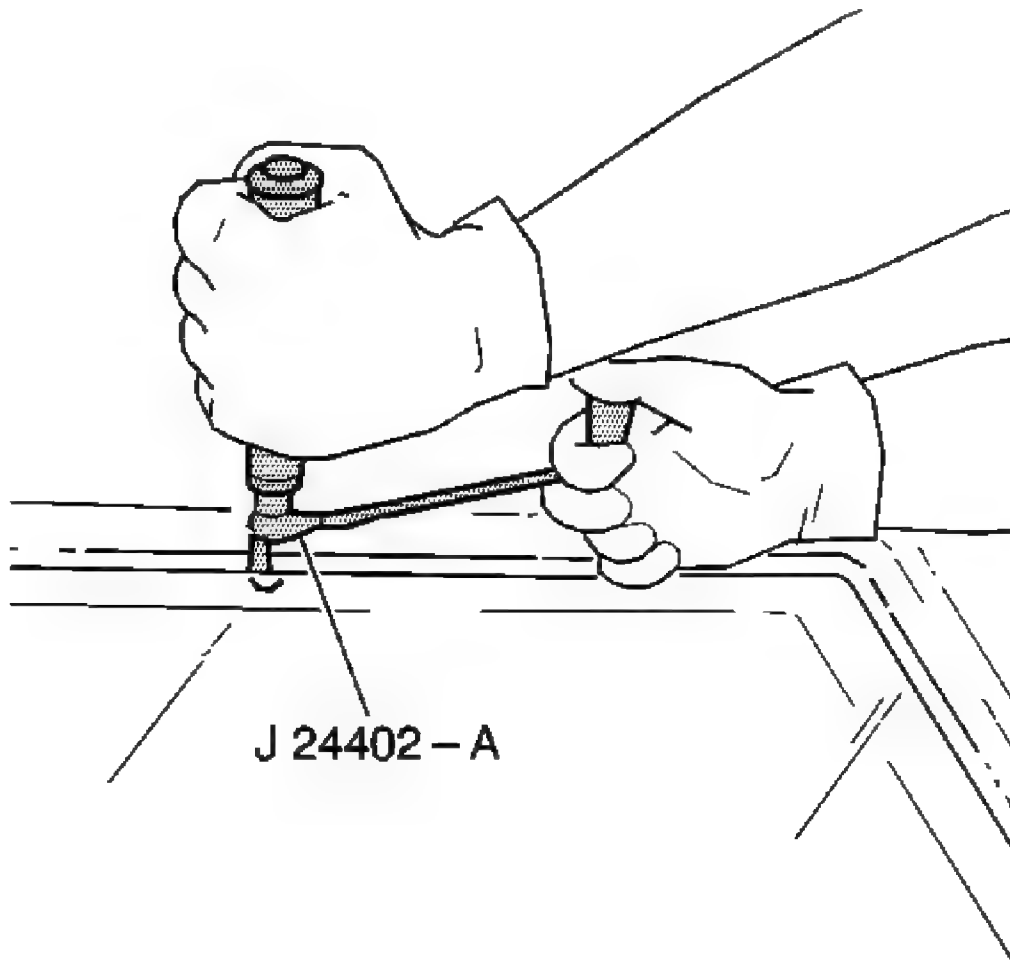


Fig. 20: Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Keep the cutting edge of the tool against the window.

9. Remove the window from the urethane adhesive.
 - Leave a base of urethane approximately 2 mm (0.078 in) on the pinch-weld flange.
 - The only suitable lubrication is clear water.
 - Use **J 24402-A** , **J 39032** or equivalent to remove the window. See **Special Tools**.

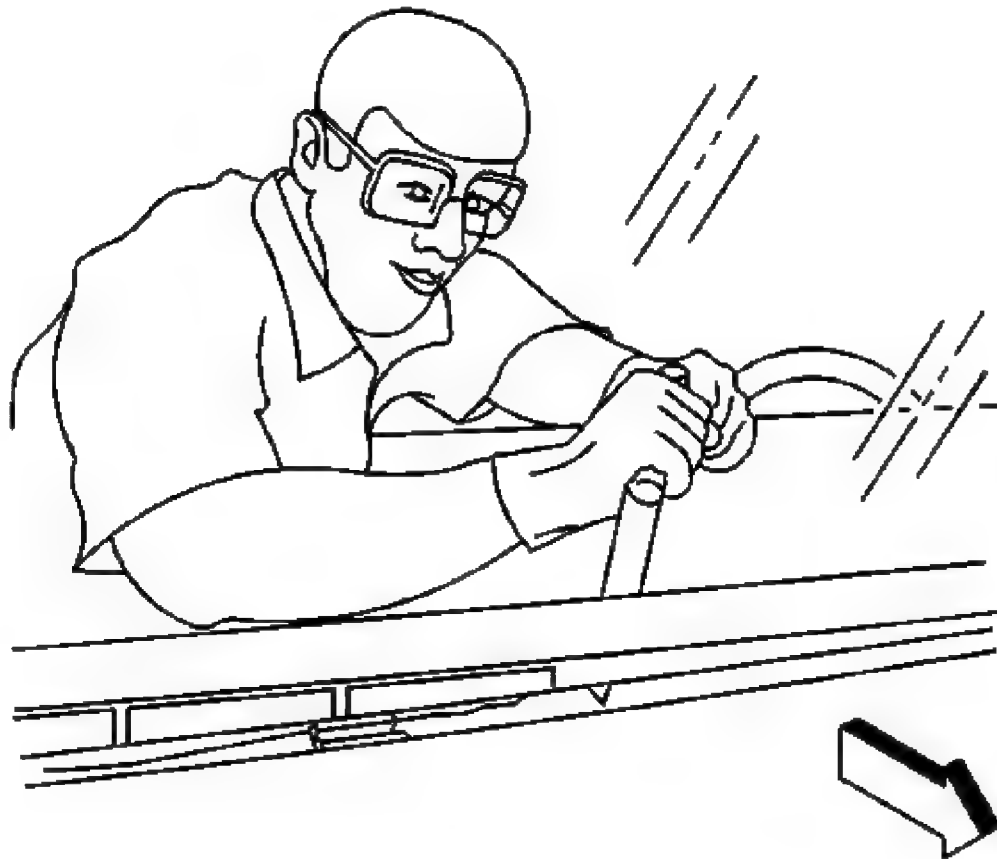


Fig. 21: Separating Bottom Of Window
Courtesy of GENERAL MOTORS CORP.

**IMPORTANT: Keep the cutting edge of the knife/tool against the window.
Do this from inside the vehicle.**

10. If necessary, use a long utility knife or similar tool to remove the bottom corners of the windshield from the urethane adhesive.

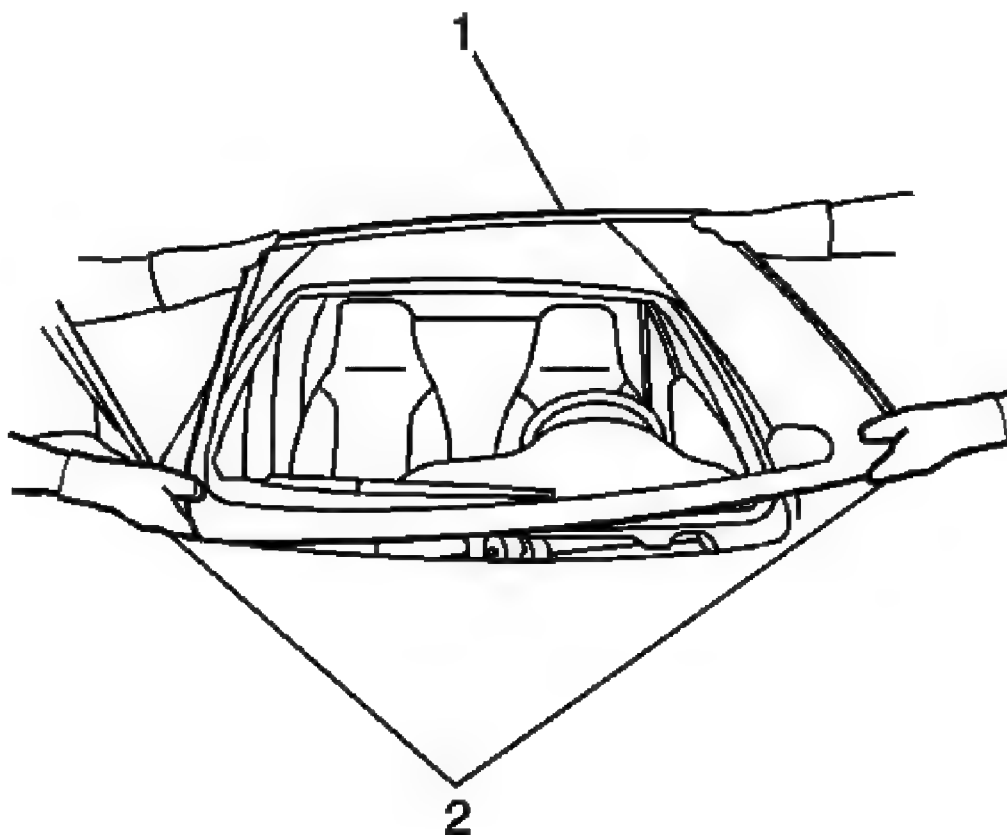


Fig. 22: Removing/Installing Windshield
Courtesy of GENERAL MOTORS CORP.

11. With the aid of an assistant (2), remove the windshield (1) from the vehicle.

Installation Procedure

1. Install the windshield into the opening. Refer to **Adhesive Installation of Stationary Windows**.
2. Install the windshield moisture rain sensor. Refer to **Windshield Outside Moisture Sensor Replacement**.
3. Install the rearview mirror. Refer to **Inside Rearview Mirror Replacement**.
4. Install the interior windshield pillar garnish moldings. Refer to **Windshield Pillar Garnish Molding Replacement**.
5. Install the air inlet grille. Refer to **Air Inlet Grille Panel Replacement**.
6. Install the windshield wipers arms and blades. Refer to **Windshield Wiper Arm Replacement**.

7. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
8. Close the hood.

ADHESIVE INSTALLATION OF STATIONARY WINDOWS

Installation Procedure

CAUTION: Refer to Glass and Sheet Metal Handling Caution .

IMPORTANT: Remove all but approximately 2 mm (3/64 in) of the existing bead of urethane adhesive from the pinch-weld flange.

1. Remove all mounds or loose pieces of urethane adhesive from the pinch-weld area.
2. If the original window is being reused, remove all but a thin film of the existing urethane adhesive from the window surface by using a clean utility knife or razor blade scraper.
3. Inspect the following components for the causes of a broken window:
 - The flange of the window opening
 - The window reveal molding
4. Inspect for any of the following problems in order to help prevent future breakage of the window:
 - High weld
 - Solder spots
 - Hardened sealer
 - Any other obstruction or irregularity in the pinch-weld flange

IMPORTANT: If corrosion of the pinch-weld flange is present or if sheet metal repairs or replacements are required, the pinch-weld flange must be refinished in order to restore the bonding area strength. If paint repairs are required, mask the flange bonding area prior to applying the color coat in order to provide a clean primer only surface. Materials such as BASF DE15®, DuPont 2610®, Sherwin-Williams PSE 4600 and NP70® and Martin-Semour 5120 and 5130® PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application.

5. After repairing the opening as indicated, perform the following steps:
 1. Remove all traces of broken glass from the outer cowl panel, seats, floor and defroster ducts.
 2. Clean around the edge of the inside surface of the window with a 50/50 mixture of isopropyl alcohol and water by volume on a dampened lint free cloth.

CAUTION: Refer to Window Retention Caution .

6. Verify all primers and urethane adhesive are within expiration dates.

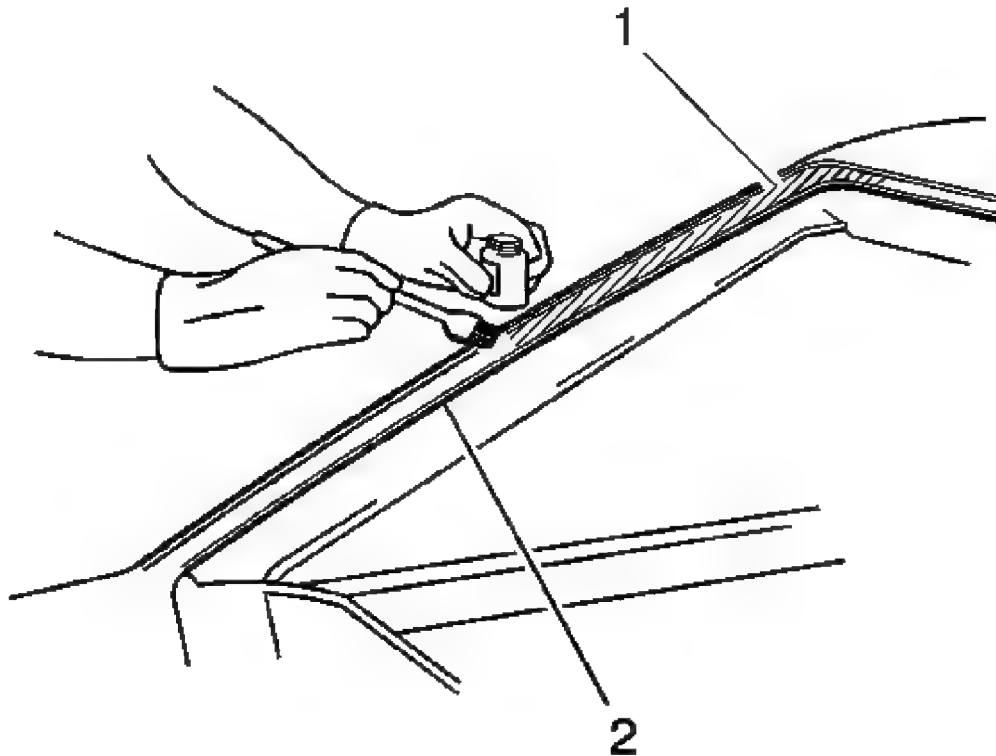


Fig. 23: Applying Pinch-Weld Primer
Courtesy of GENERAL MOTORS CORP.

CAUTION: Failure to prep the area prior to the application of primer may cause insufficient bonding of urethane adhesive. Insufficient bonding of urethane adhesive may allow unrestrained occupants to be ejected from

the vehicle resulting in personal injury.

IMPORTANT: Do not apply the black #3 primer to the existing bead (1) of the urethane adhesive on the pinch-weld flange. Apply the primer only to nicks, scratches or the primed surfaces.

7. Shake the pinch-weld primer black #3 for at least 1 minute.
8. Use a new dauber in order to apply the primer to the surface of the pinch-weld flange (1).
9. Allow the pinch-weld primer to dry for approximately 10 minutes.

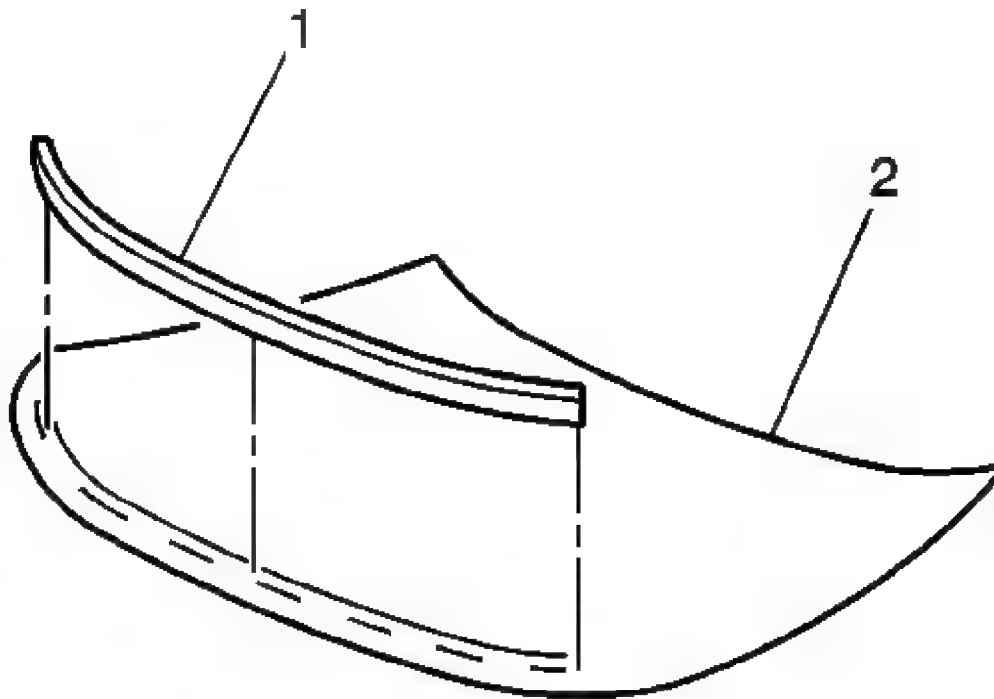


Fig. 24: Identifying Windshield Acoustic Strip
Courtesy of GENERAL MOTORS CORP.

10. Install the new windshield acoustic strip (1) to the windshield (2), if equipped or damaged.

The acoustic strip aids in reducing noise.

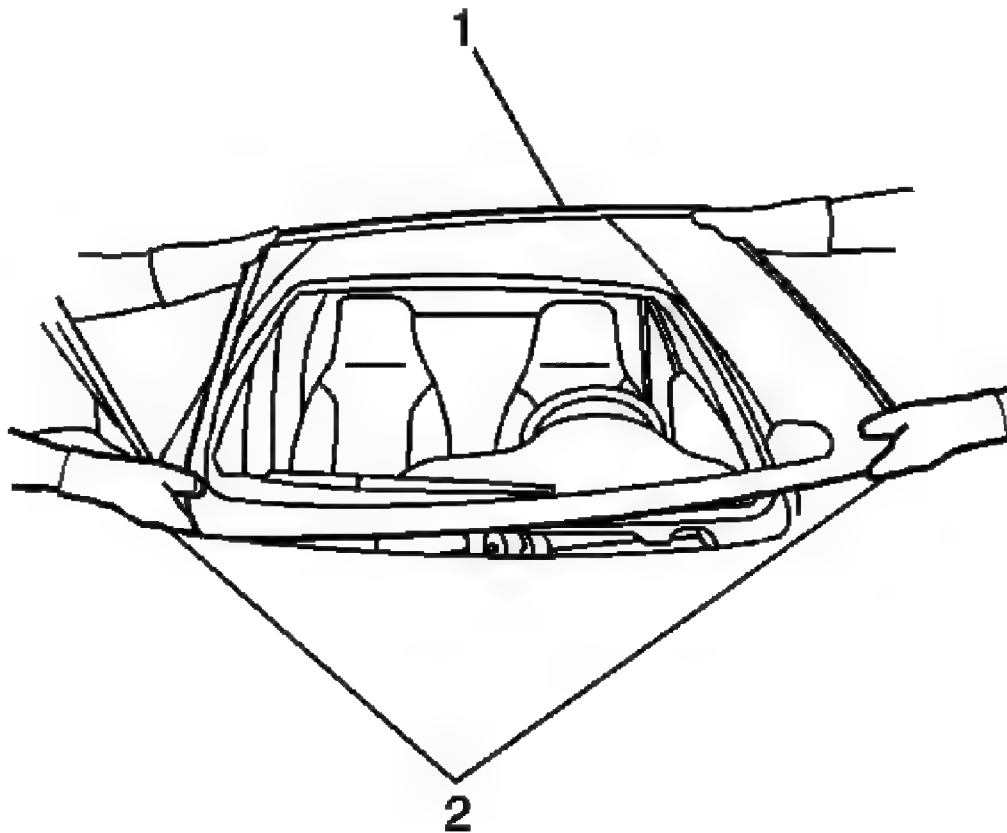


Fig. 25: Removing/Installing Windshield
Courtesy of GENERAL MOTORS CORP.

11. With the aid of an assistant, dry fit the window (1) to the opening in order to determine the correct position.

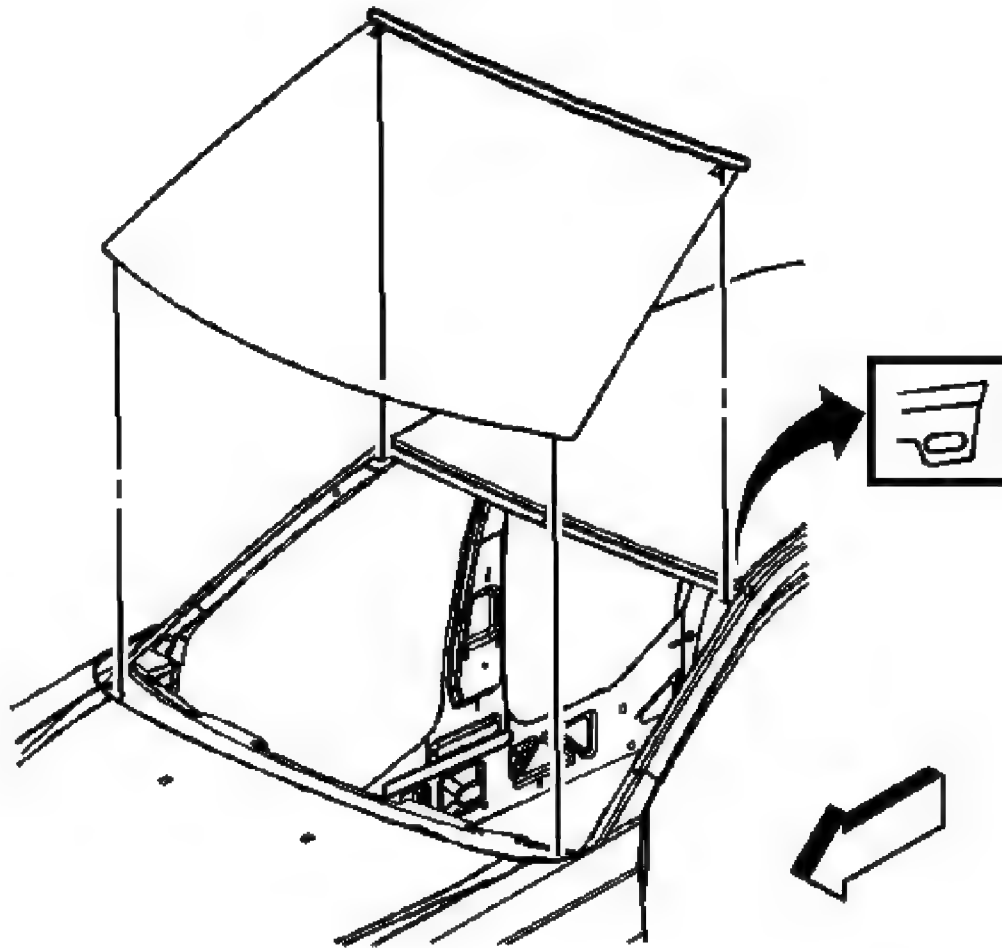


Fig. 26: Upper Sheet Metal Window Slots
Courtesy of GENERAL MOTORS CORP.

12. If equipped, ensure that the windshield locator pins are positioned into the locator slots on the upper pinch-weld flange.

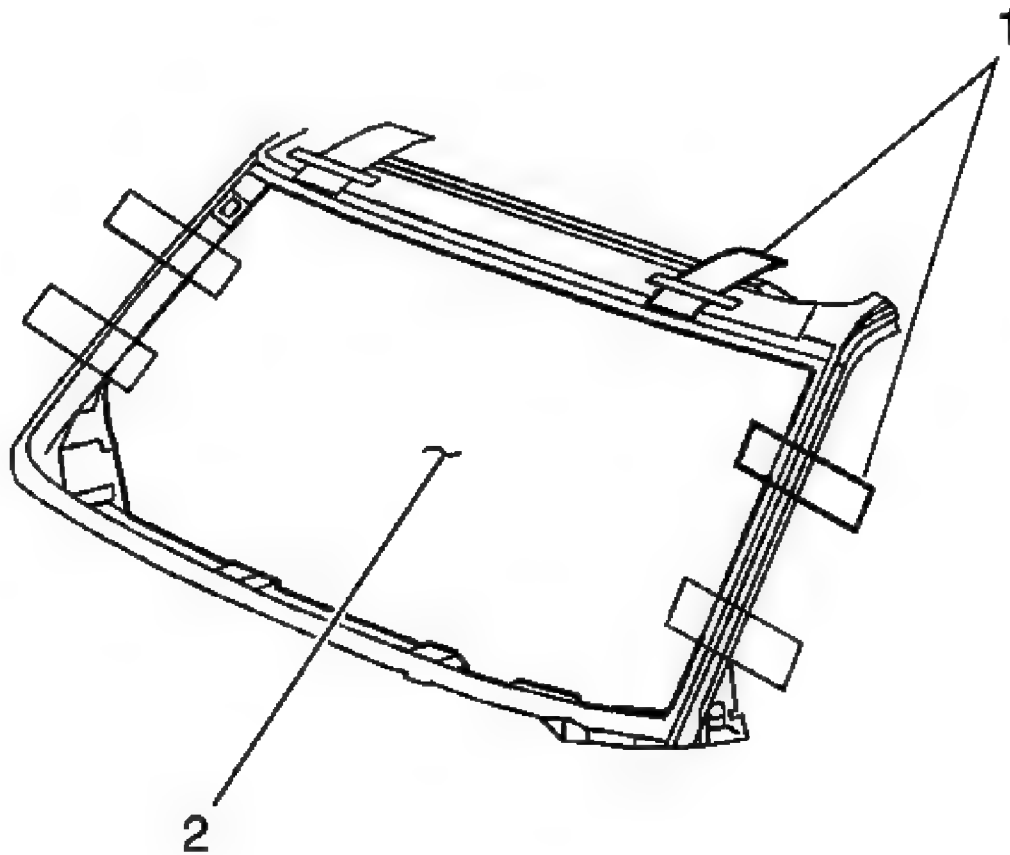


Fig. 27: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

13. Using masking tape in order to mark the locations (1) of the window (2) in the opening.
14. Cut the masking tape in the center and remove the window from the opening.

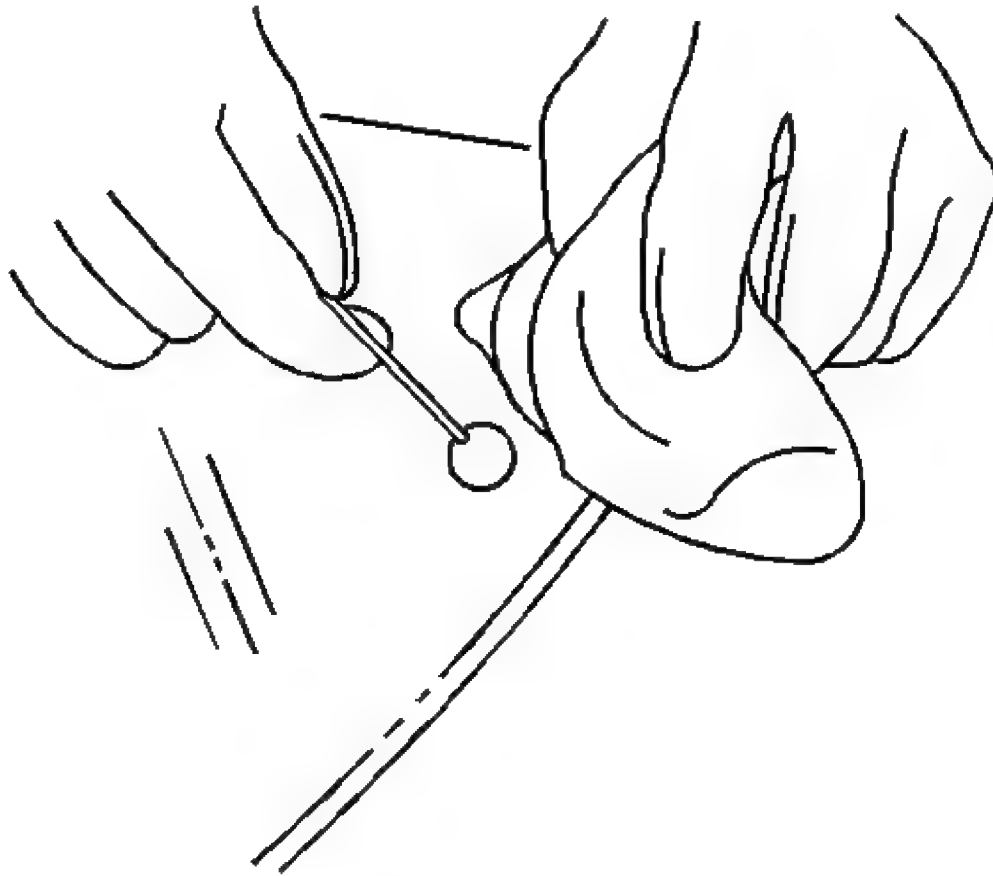


Fig. 28: Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Use care when applying glass prep clear #1 on the window. This primer dries almost instantly and may stain the viewing area of the window if not applied evenly.

15. Use a new dauber in order to apply glass prep clear #1 to the area approximately 18 mm (0.71 in) around the entire perimeter of the window inner surface.

Immediately wipe the glass primed area using a clean, lint-free cloth.

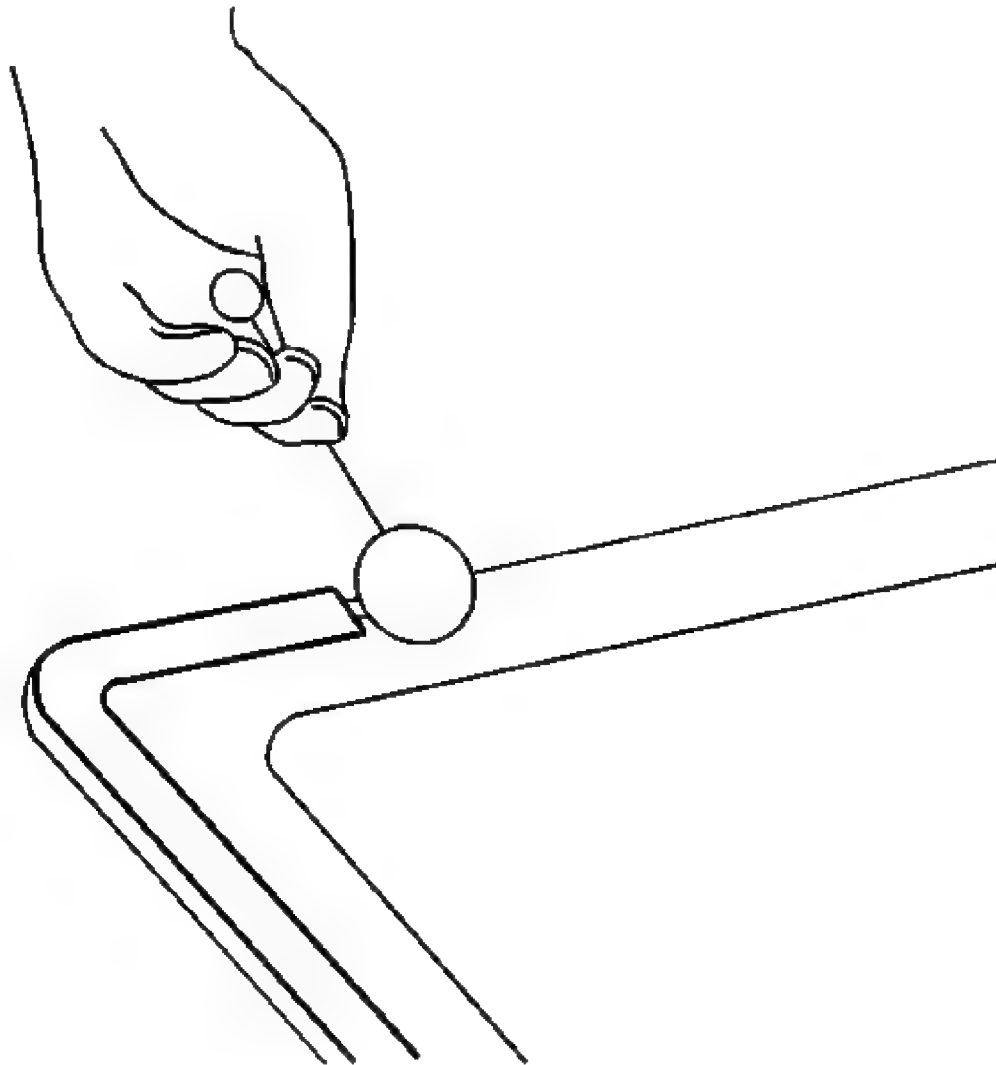


Fig. 29: Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

16. Apply a second coat of the glass prep clear #1 to the same area of the glass.

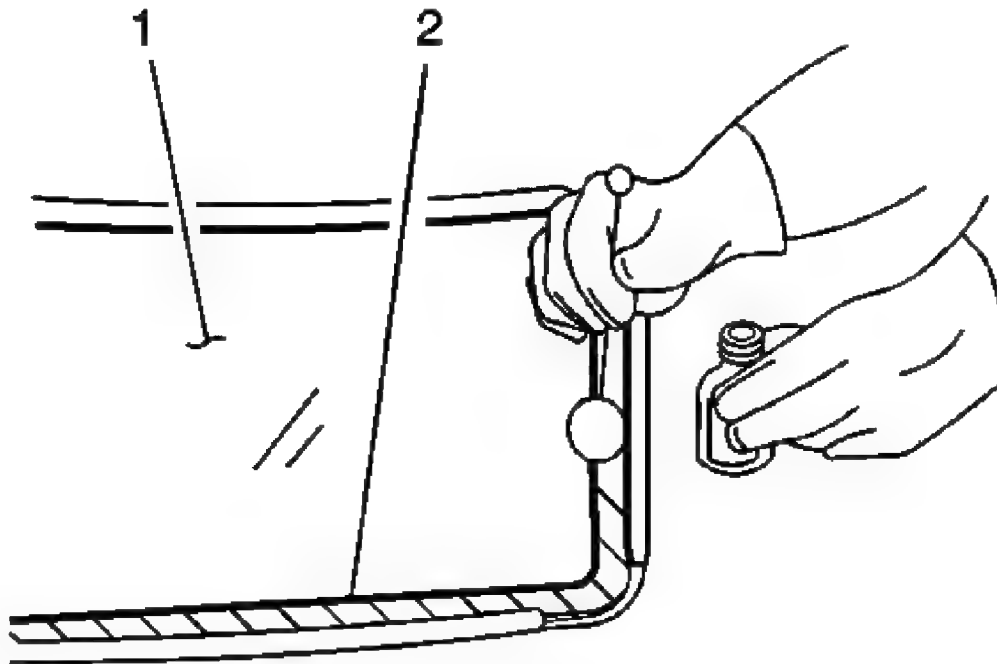


Fig. 30: Applying Glass Primer
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The glass primer black #2 is effective up to 8 hours after applying it to the glass. The primed surface of the glass must be kept clean.

17. Shake the glass primer black #2 for at least 1 minute.
18. Use a new dauber in order to apply the glass primer black #2 to the same areas (2) that glass prep clear #1 was applied.
19. Allow the glass primer to dry for approximately 10 minutes.

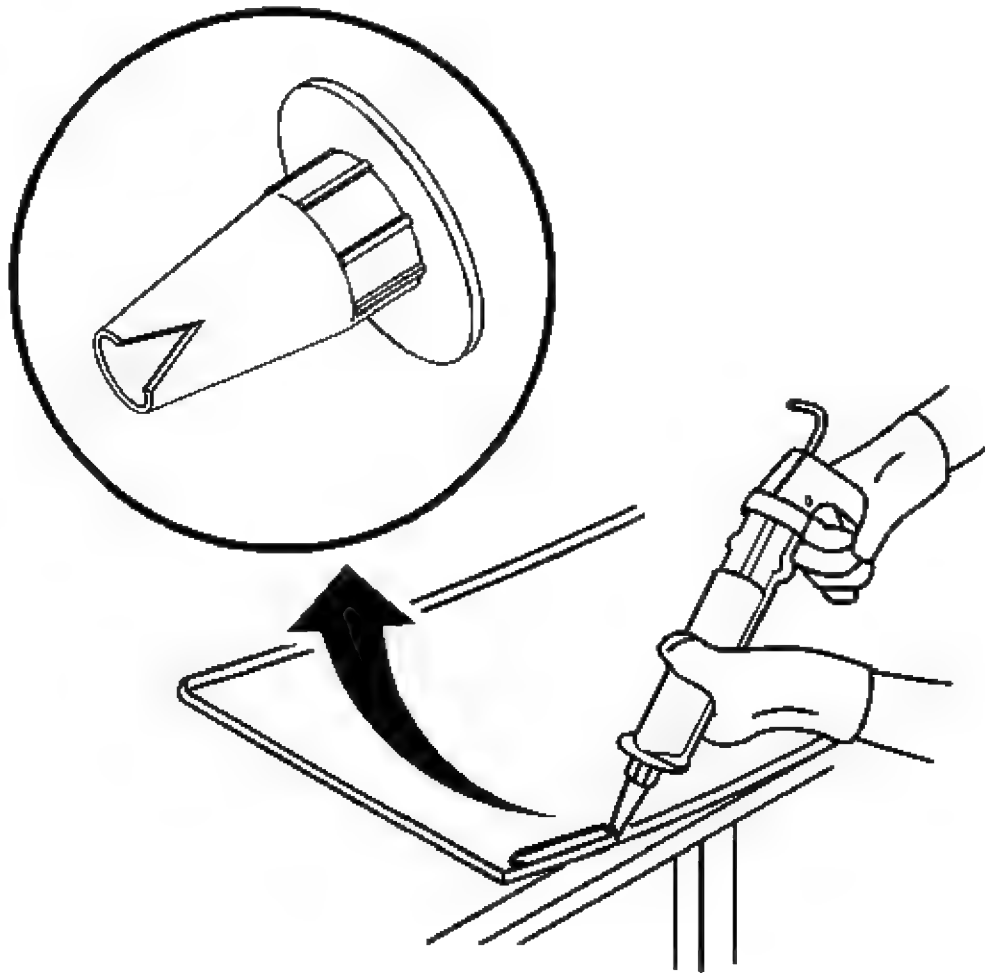


Fig. 31: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS CORP.

20. Cut the applicator nozzle in order to provide a minimum urethane bead of 8 mm (0.31 in) wide and 16 mm (0.63 in) high.

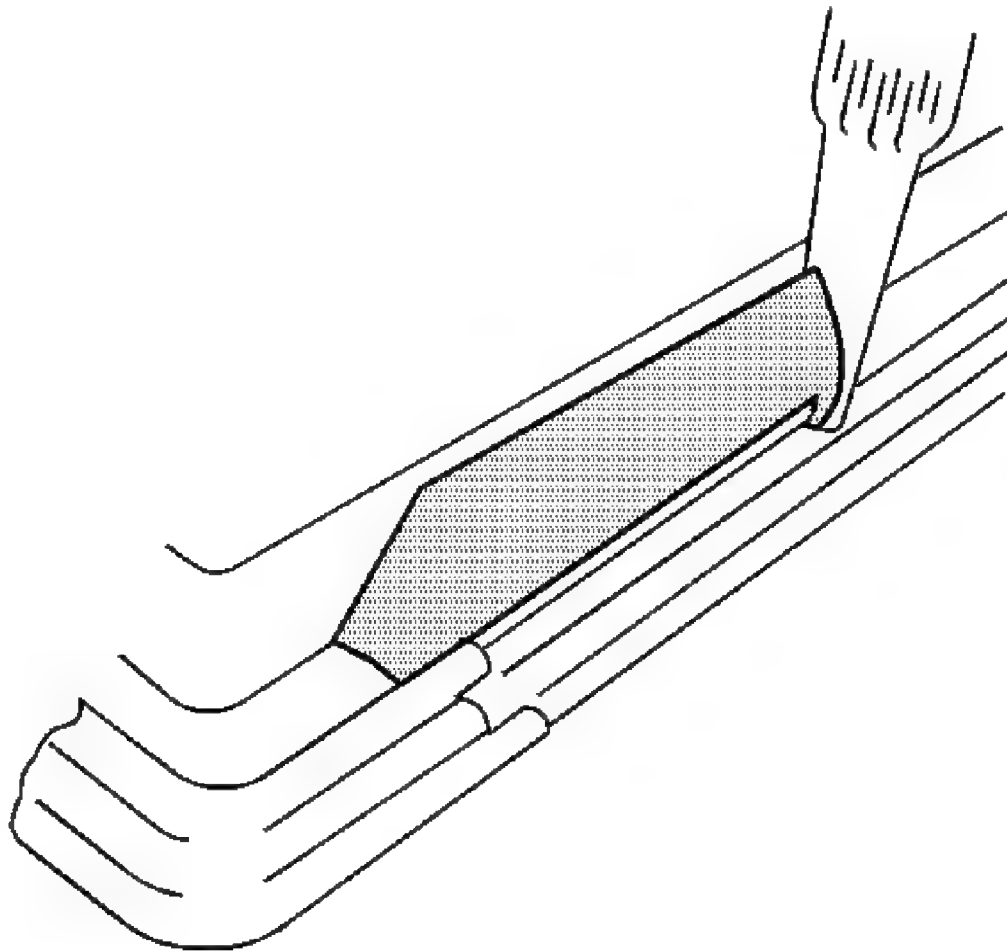


Fig. 32: Applying Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS CORP.

21. Use a cartridge-type caulking gun in order to apply a smooth, continuous bead of urethane adhesive.

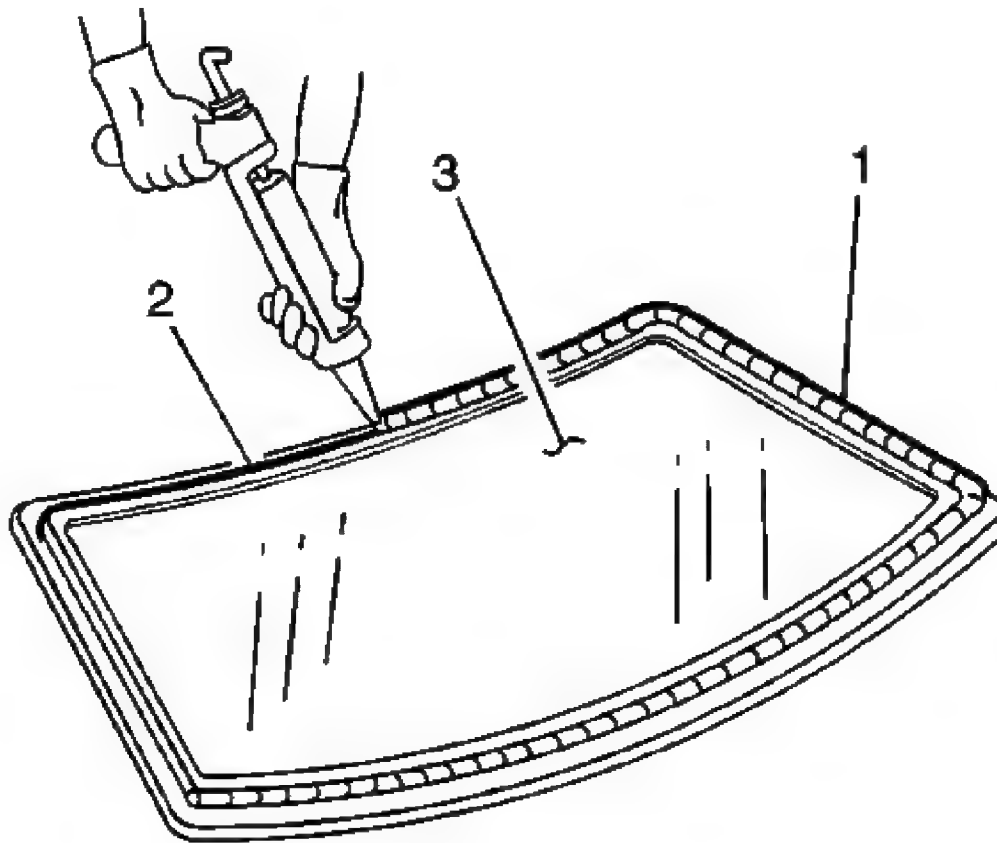


Fig. 33: Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS CORP.

22. Use the edge of the window or the inside edge of the reveal molding as a guide for the nozzle in order to apply the urethane adhesive (1) to the inner surface of the window (3).

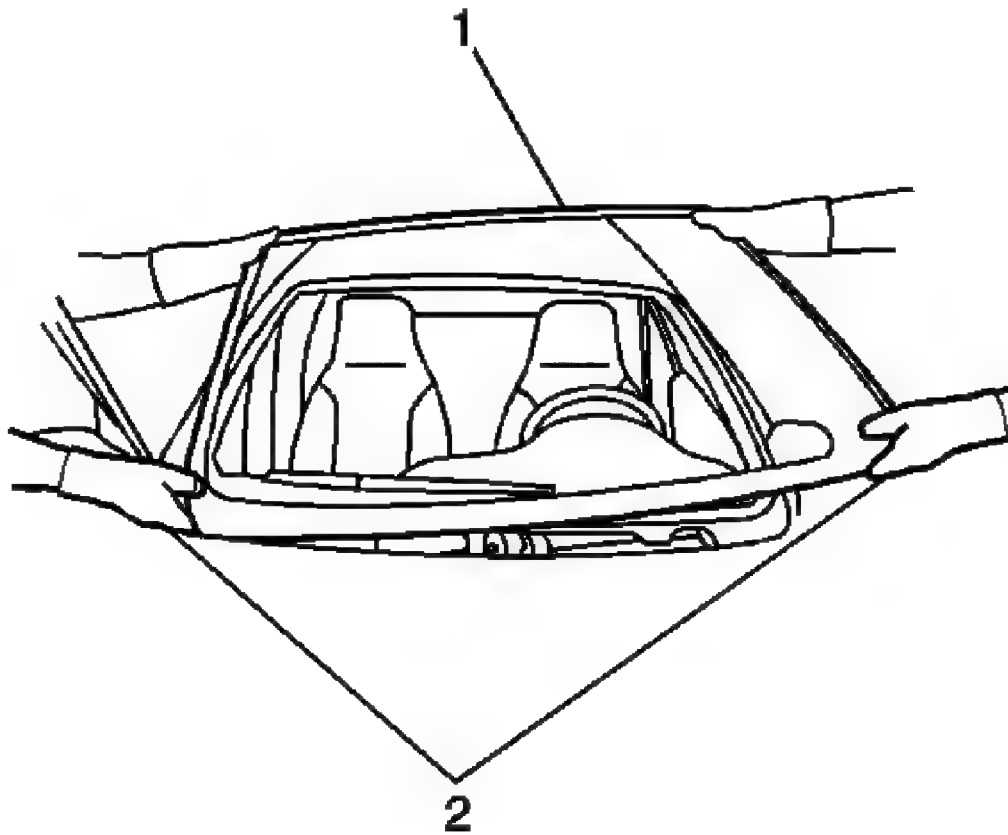


Fig. 34: Removing/Installing Windshield
Courtesy of GENERAL MOTORS CORP.

23. With the aid of an assistant, place the window (1) in the opening (2).

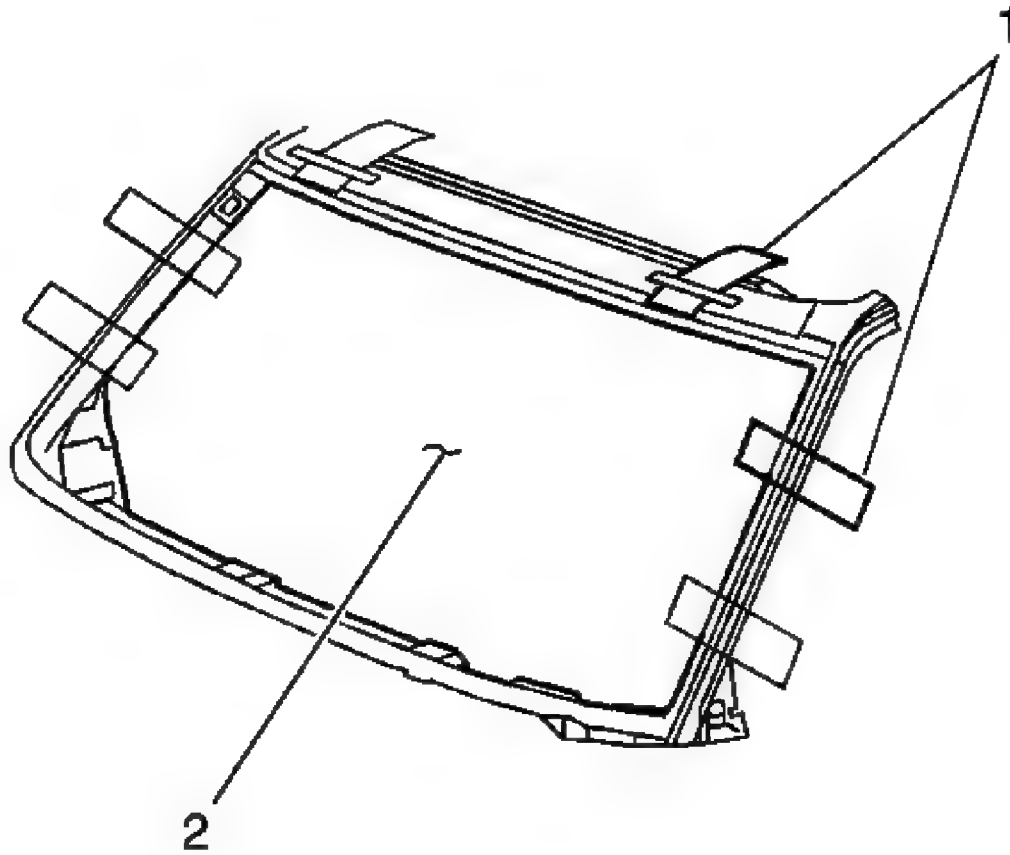


Fig. 35: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

24. Align the masking tape (1) lines on the window (2) and the body.

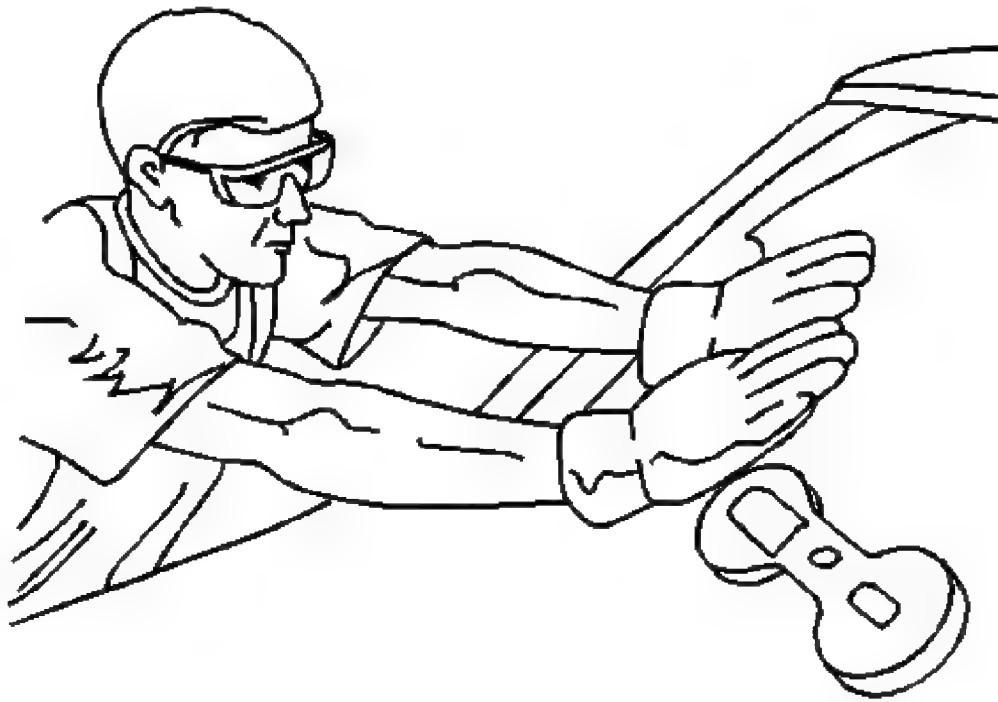


Fig. 36: Pressing Window Into Place
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: To prevent damage to the window due to objects impacting an exposed edge, upon installation, the window must rest 1 mm (0.040 in) below the surface of the sheet metal.

25. Press firmly around the entire periphery of the windshield in order to wet-out the urethane bead.
26. Tape the window to the body in order to minimize movement until the urethane adhesive cures.

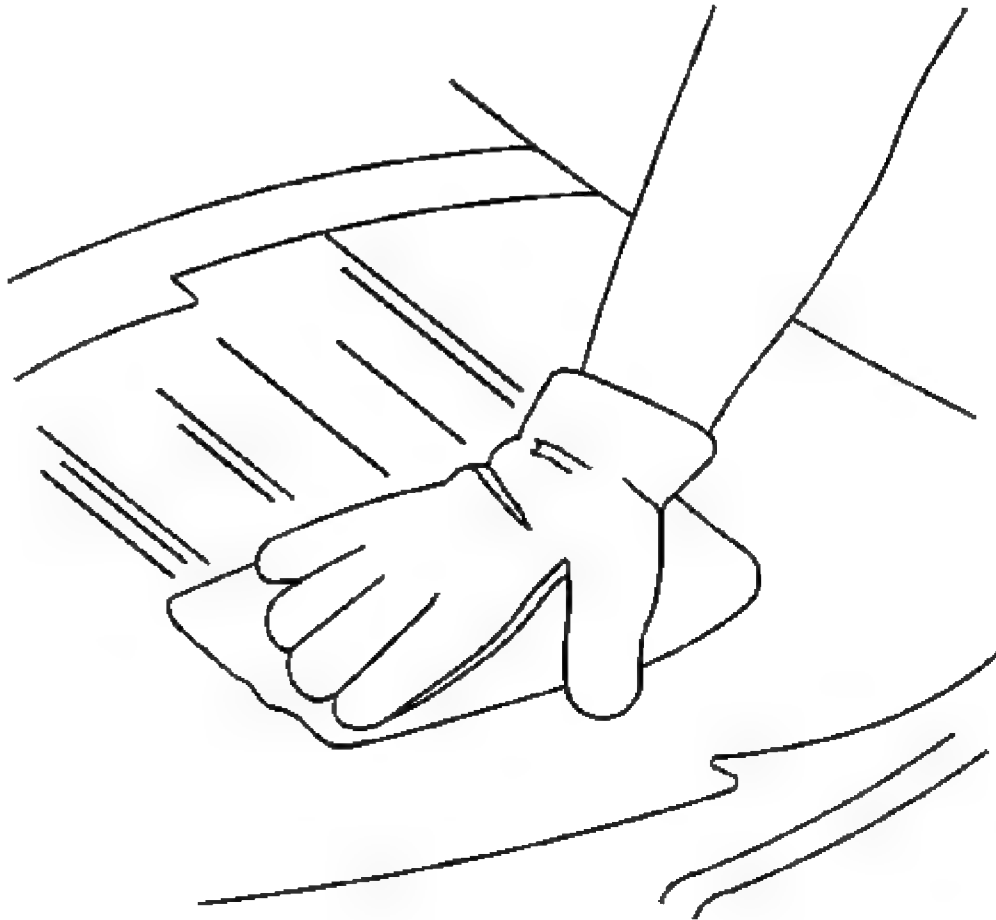


Fig. 37: Cleaning Window
Courtesy of GENERAL MOTORS CORP.

27. Clean any excess urethane adhesive from the body.

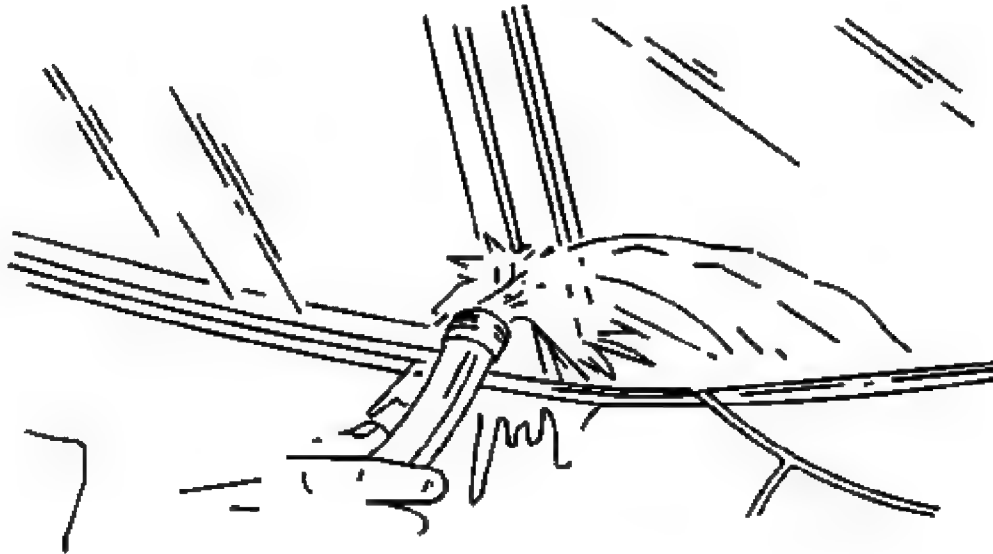


Fig. 38: Performing Water Hose Test
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Do not direct a hard stream of high pressure water to the freshly applied urethane adhesive.

28. Use a soft spray of warm water in order to immediately water test the window.
29. Inspect the window for leaks.
30. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
31. Retest the window for leaks.

CAUTION: Insufficient curing of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

- For the moisture-curing type of urethane adhesive, allow a minimum of 6 hours at 21°C (70°F) or greater and with at least 30 percent relative humidity. Allow at least 24 hours for the complete curing of the urethane adhesive.
- For the chemical-curing type of urethane adhesive,

allow a minimum of 1 hour.

Do NOT physically disturb the repair area until after these minimum times have elapsed.

32. Maintain the following conditions in order to properly cure the urethane adhesive:
- Partially lower a door window in order to prevent pressure buildups when closing doors before the urethane adhesive cures.
 - Do not drive the vehicle until the urethane adhesive is cured. See the above curing times.
 - Do not use compressed air in order to dry the urethane adhesive.
33. Complete the window installation.

ADHESIVE INSTALLATION OF REAR WINDOWS

Installation Procedure

CAUTION: Refer to Glass and Sheet Metal Handling Caution .

IMPORTANT: Remove all but approximately 2 mm (3/64 in) of the existing bead of urethane adhesive from the pinch-weld flange.

1. Remove all mounds or loose pieces of urethane adhesive from the pinch-weld area.
2. If the original window is being reused, remove all but a thin film of the existing urethane adhesive from the window surface by using a clean utility knife or razor blade scraper.
3. Inspect the following components for the causes of a broken window:
 - The flange of the window opening
 - The window reveal molding
4. Inspect for any of the following problems in order to help prevent future breakage of the window:
 - High weld
 - Solder spots
 - Hardened sealer
 - Any other obstruction or irregularity in the pinch-weld flange

IMPORTANT: If corrosion of the pinch-weld flange is present or if sheet metal repairs or replacements are required, the pinch-weld

flange must be refinished in order to restore the bonding area strength. If paint repairs are required, mask the flange bonding area prior to applying the color coat in order to provide a clean primer only surface. Materials such as BASF DE15®, DuPont 2610®, Sherwin-Williams PSE 4600 and NP70® and Martin-Semour 5120 and 5130® PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application.

5. After repairing the opening as indicated, perform the following steps:
 1. Remove all traces of broken glass from the outer cowl panel, seats, floor and defroster ducts.
 2. Clean around the edge of the inside surface of the window with a 50/50 mixture of isopropyl alcohol and water by volume on a dampened, lint-free cloth.

CAUTION: Refer to Window Retention Caution .

6. Verify all primers and urethane adhesive are within expiration dates.

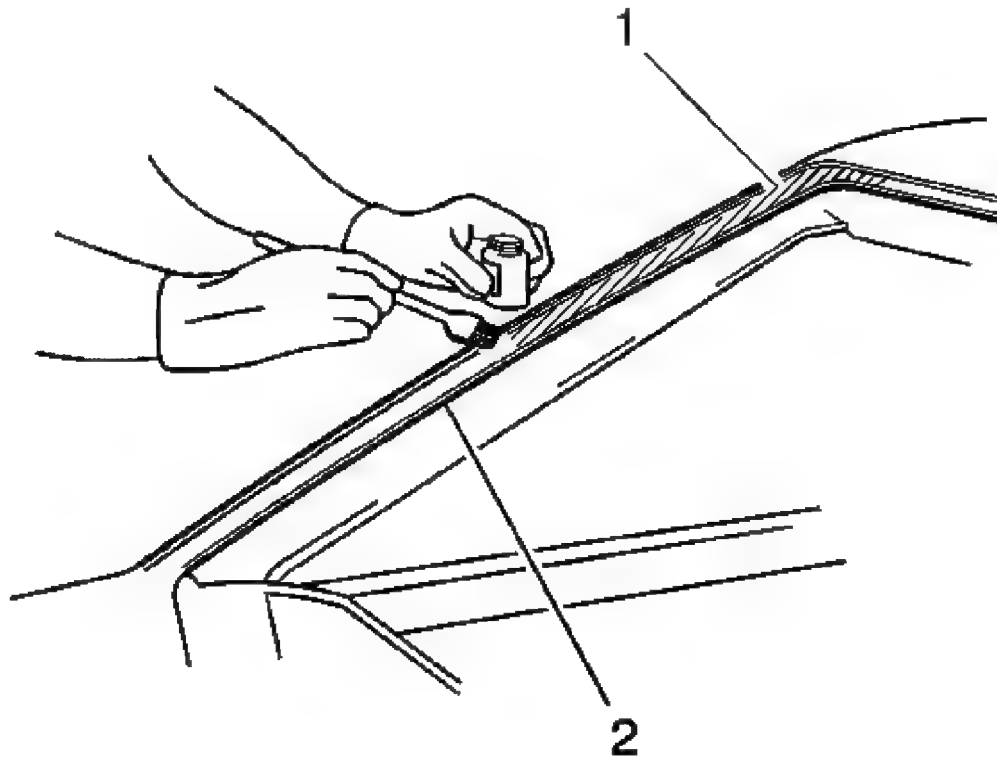


Fig. 39: Applying Pinch-Weld Primer
Courtesy of GENERAL MOTORS CORP.

CAUTION: Failure to prep the area prior to the application of primer may cause insufficient bonding of urethane adhesive. Insufficient bonding of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

IMPORTANT: Do not apply the black #3 primer to the existing bead (1) of the urethane adhesive on the pinch-weld flange. Apply the primer only to nicks, scratches or the primed surfaces.

7. Shake the pinch-weld primer black #3 for at least 1 minute.
8. Use a new dauber in order to apply the primer to the surface of the pinch-weld flange (1).
9. Allow the pinch-weld primer to dry for approximately 10 minutes.

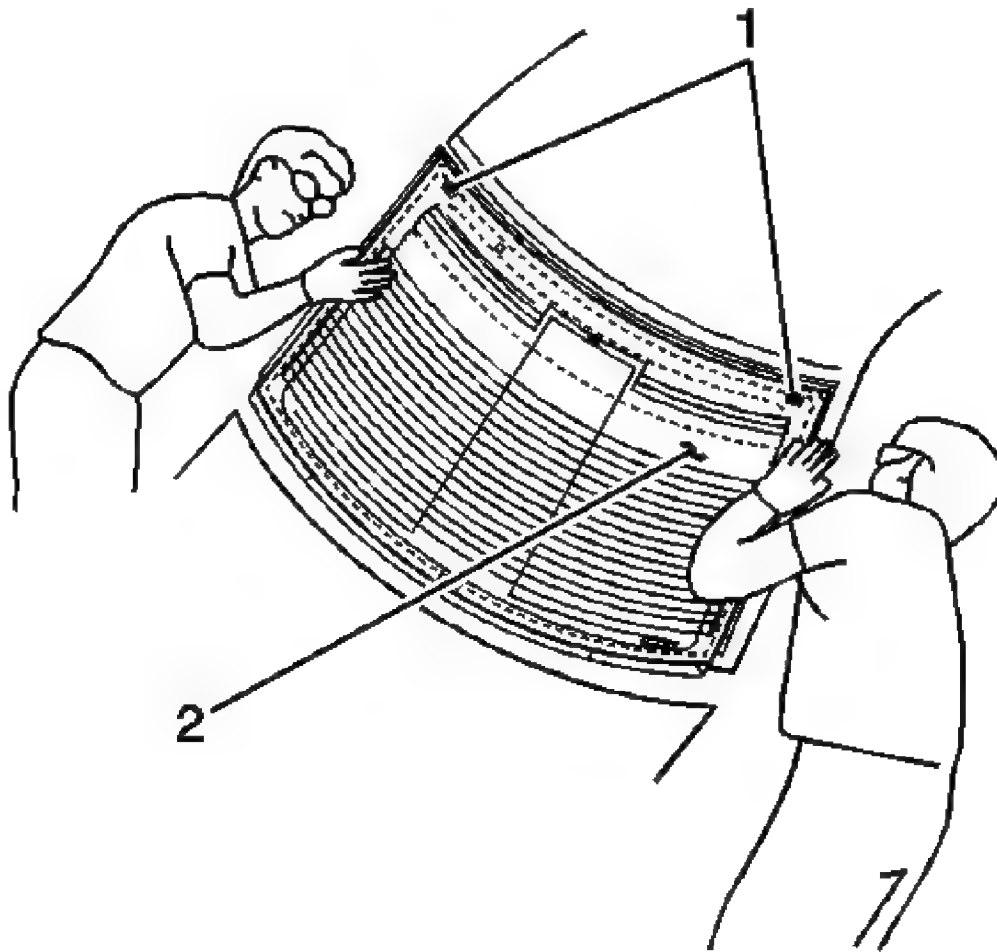


Fig. 40: Installing Rear Window
Courtesy of GENERAL MOTORS CORP.

10. With the aid of an assistant, dry fit the window (2) to the opening in order to determine the correct position.
11. Ensure that the locator pins (1) are positioned into the locator slots on the upper pinch-weld flange.

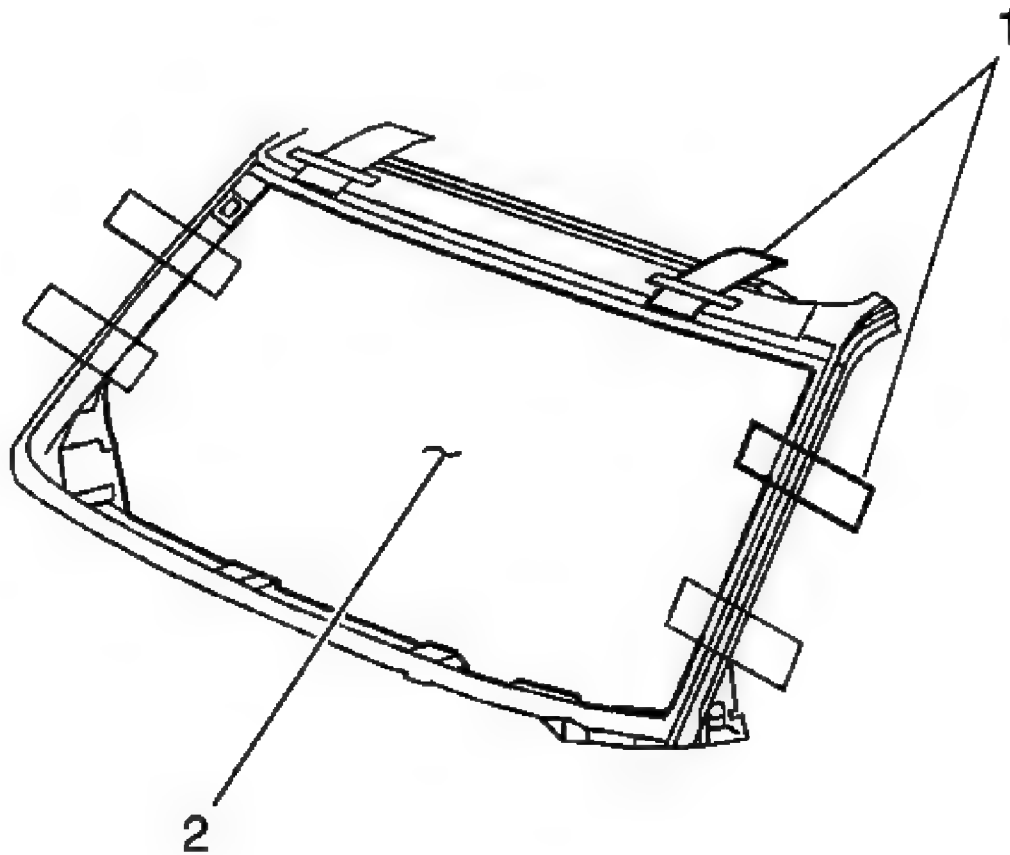


Fig. 41: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

12. Use masking tape (1) to mark the locations of the window (2) in the opening.
13. Cut the masking in the center and remove the window from the opening.

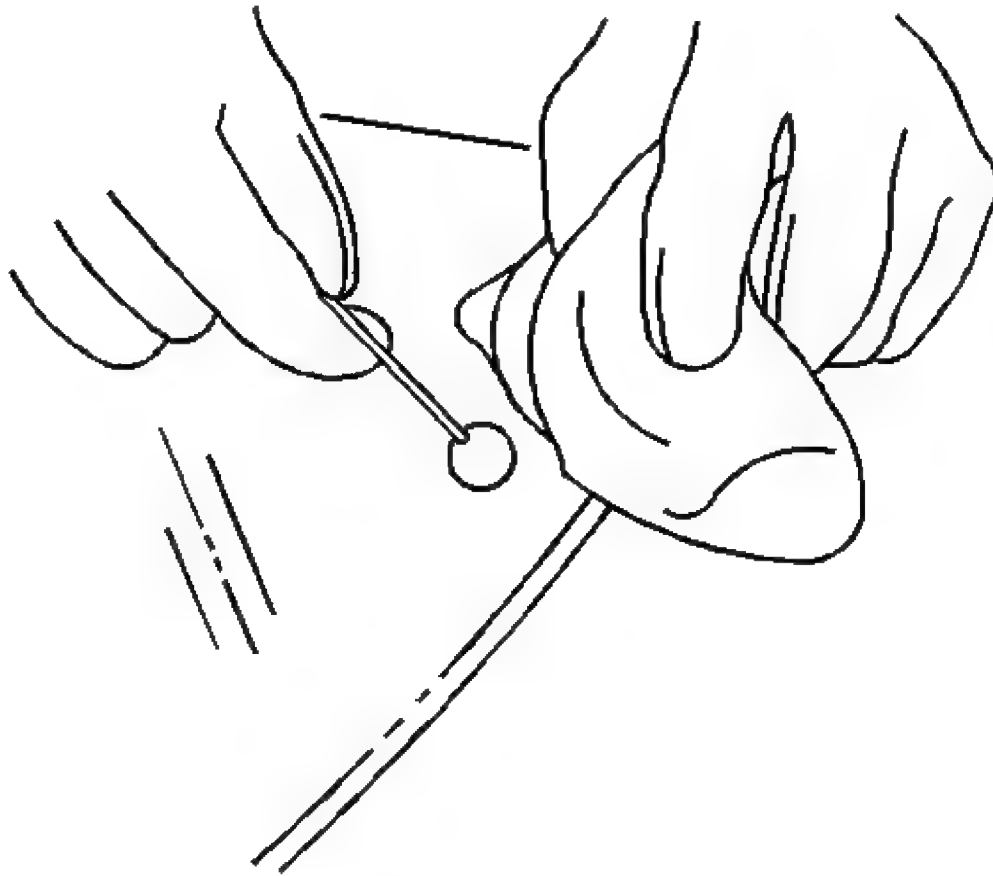


Fig. 42: Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Use care when applying glass prep clear #1 on the window. This primer dries almost instantly and may stain the viewing area of the window if not applied evenly.

14. Use a new dauber in order to apply glass prep clear #1 to the area approximately 18 mm (0.71 in) around the entire perimeter of the window inner surface.

Immediately wipe the glass primed area using a clean, lint-free cloth.

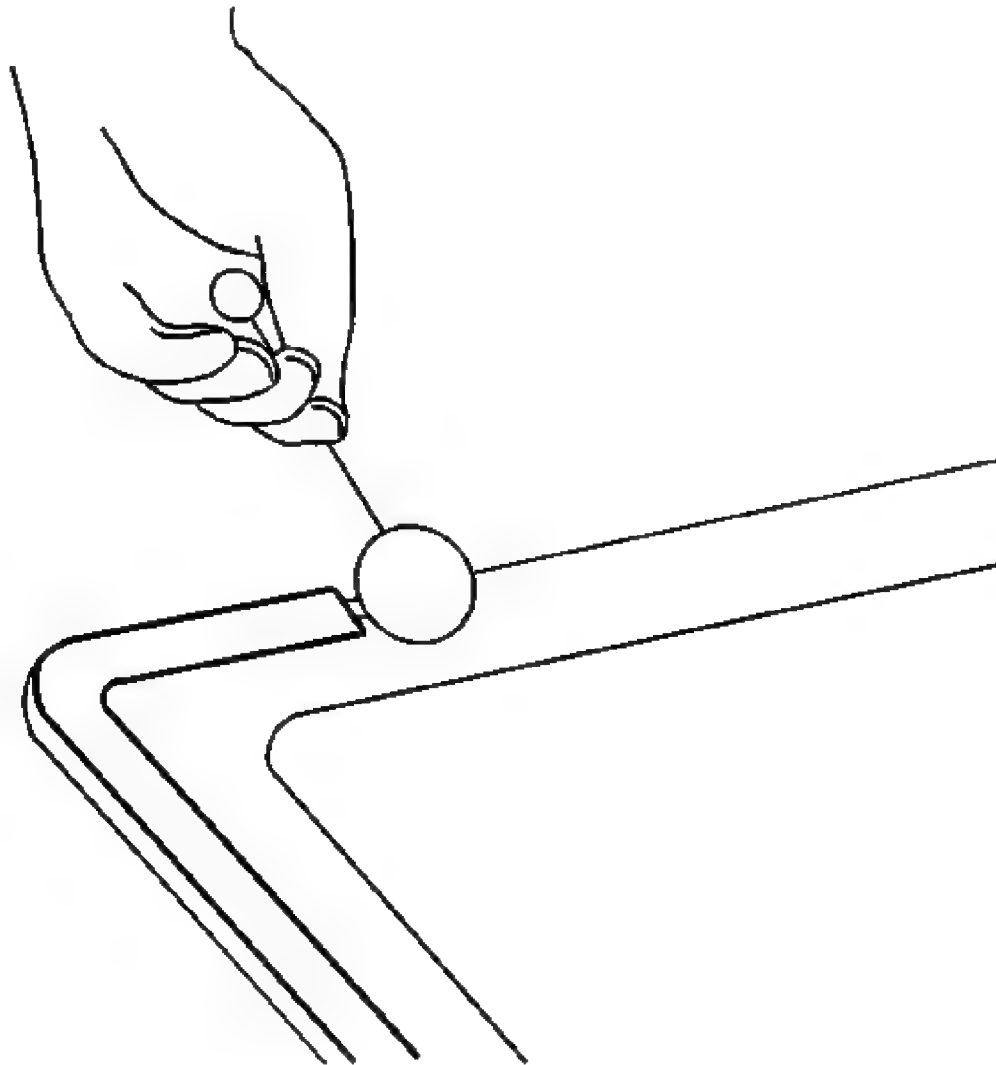


Fig. 43: Applying Glass Prep
Courtesy of GENERAL MOTORS CORP.

15. Apply a second coat of the glass prep clear #1 to the same area of the glass.

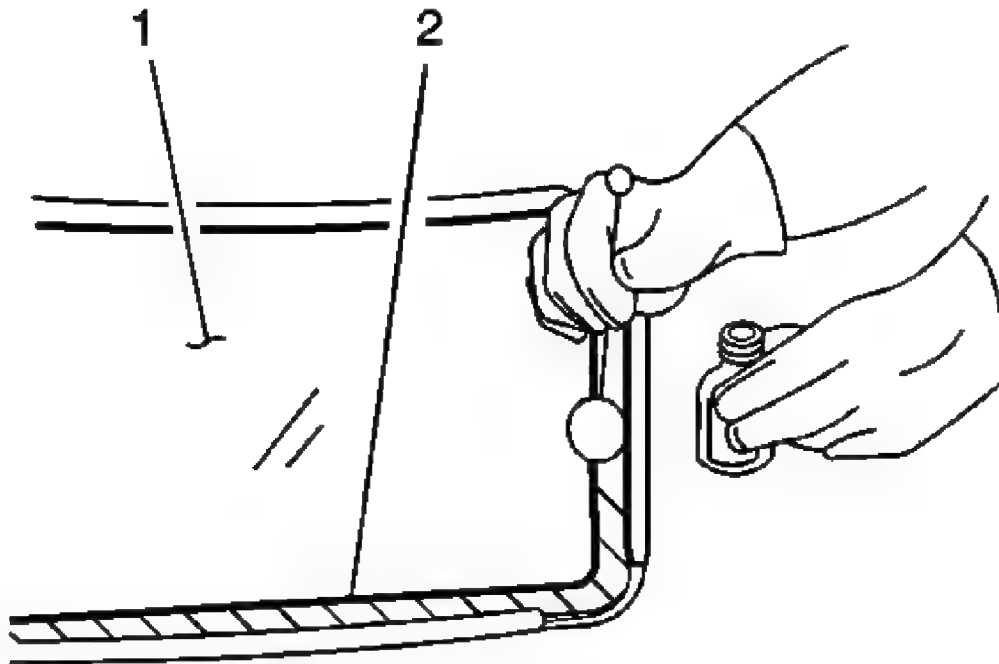


Fig. 44: Applying Glass Primer
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The glass primer black #2 is effective up to 8 hours after applying it to the glass. The primed surface of the glass must be kept clean.

16. Shake the glass primer black #2 for at least 1 minute.
17. Use a new dauber in order to apply the glass primer black #2 to the same areas (2) that glass prep clear #1 was applied.
18. Allow the glass primer to dry for approximately 10 minutes.

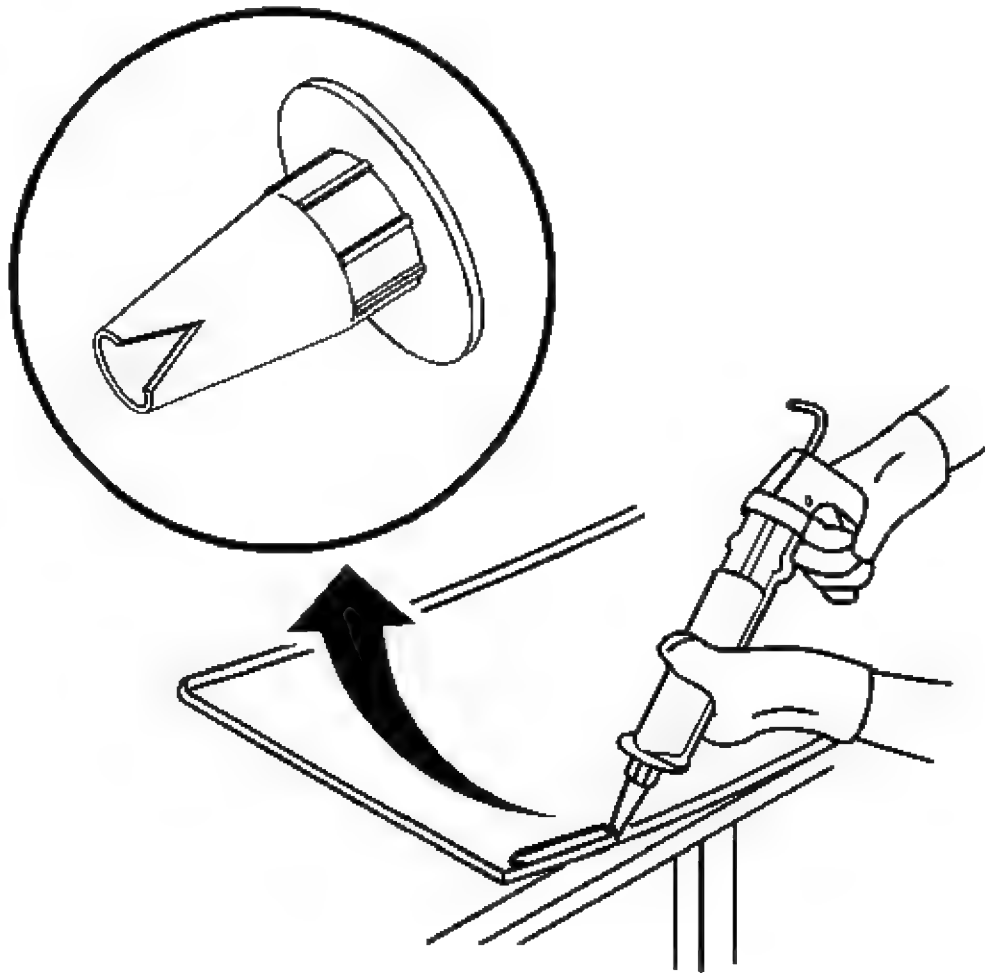


Fig. 45: View Of Modified Applicator Nozzle
Courtesy of GENERAL MOTORS CORP.

19. Cut the applicator nozzle in order to provide a minimum urethane bead of 8 mm (0.31 in) wide and 16 mm (0.63 in) high.

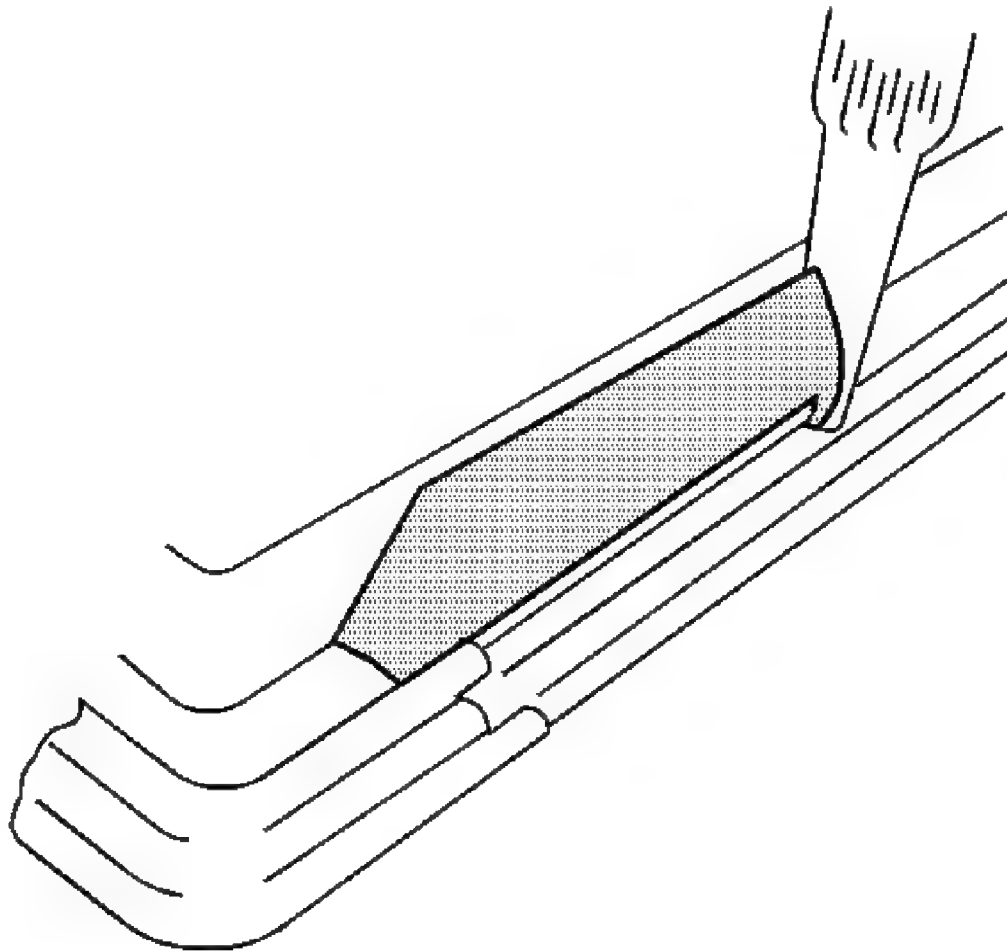


Fig. 46: Applying Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS CORP.

20. Use a cartridge-type caulking gun in order to apply a smooth, continuous bead of urethane adhesive.

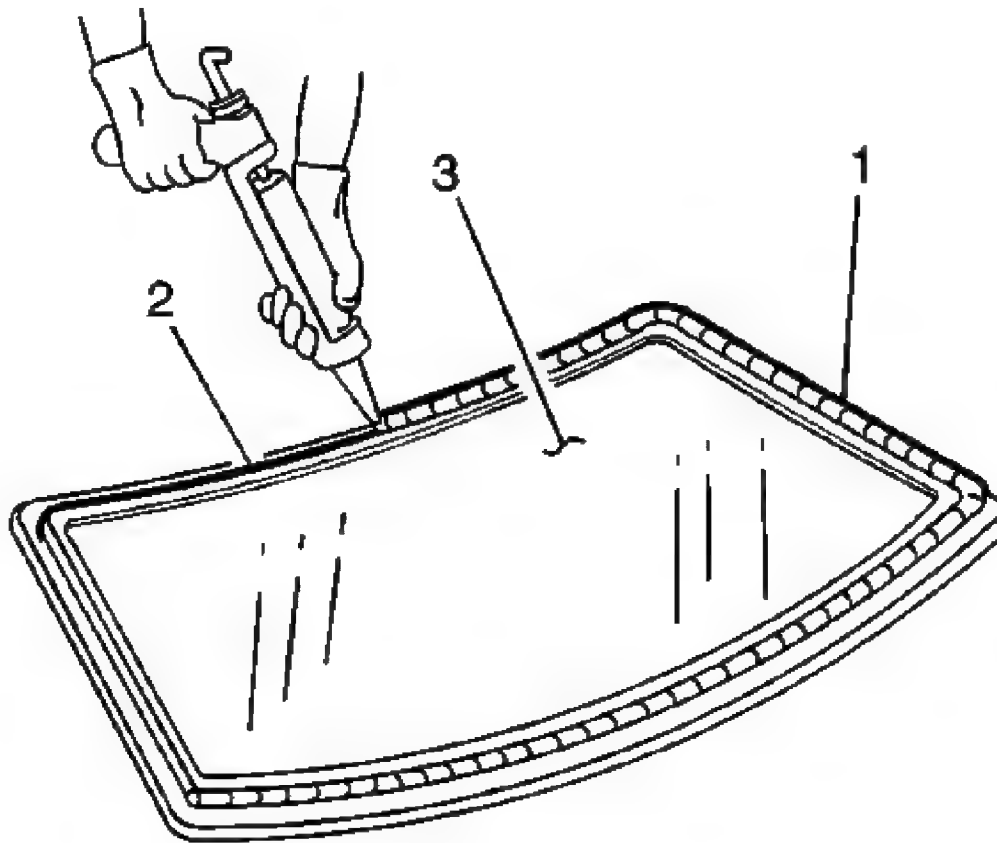


Fig. 47: Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS CORP.

21. Use the edge of the window or the inside edge of the reveal molding as a guide for the nozzle in order to apply the urethane adhesive (1) to the inner surface of the window (3).

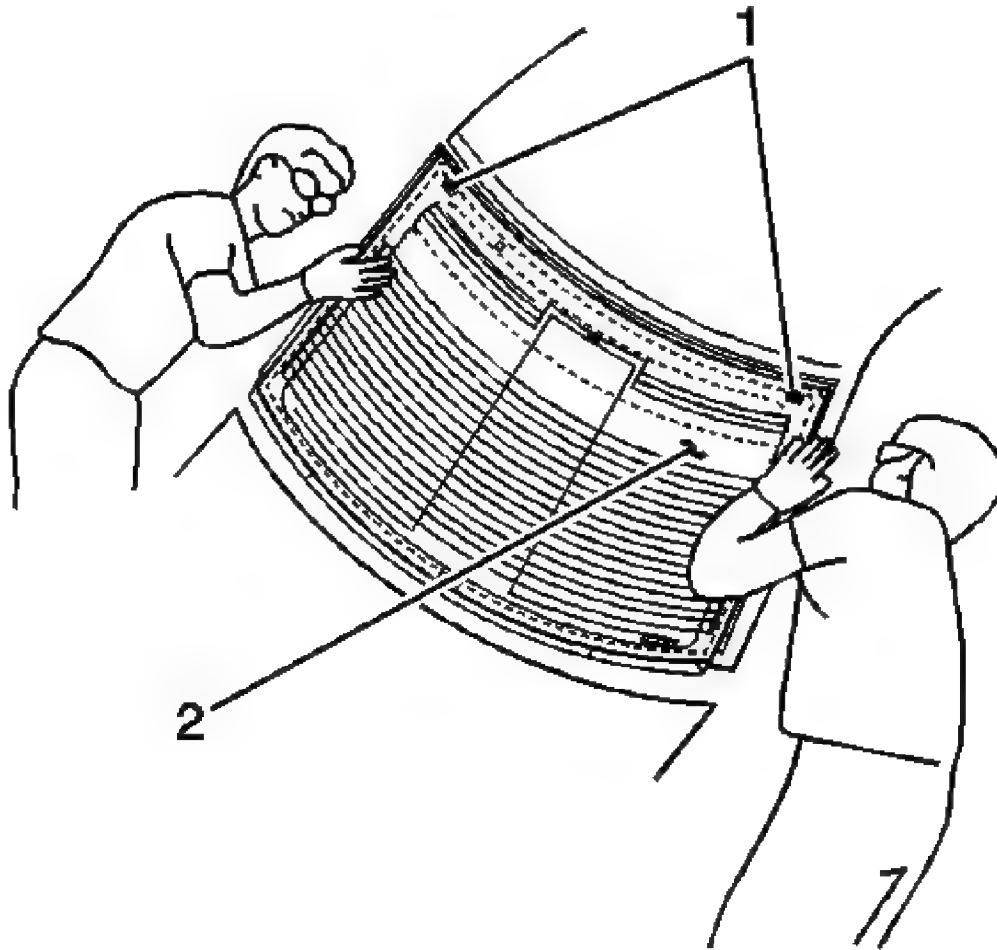


Fig. 48: Installing Rear Window
Courtesy of GENERAL MOTORS CORP.

22. With the aid of an assistant, place the window (2) in the opening.

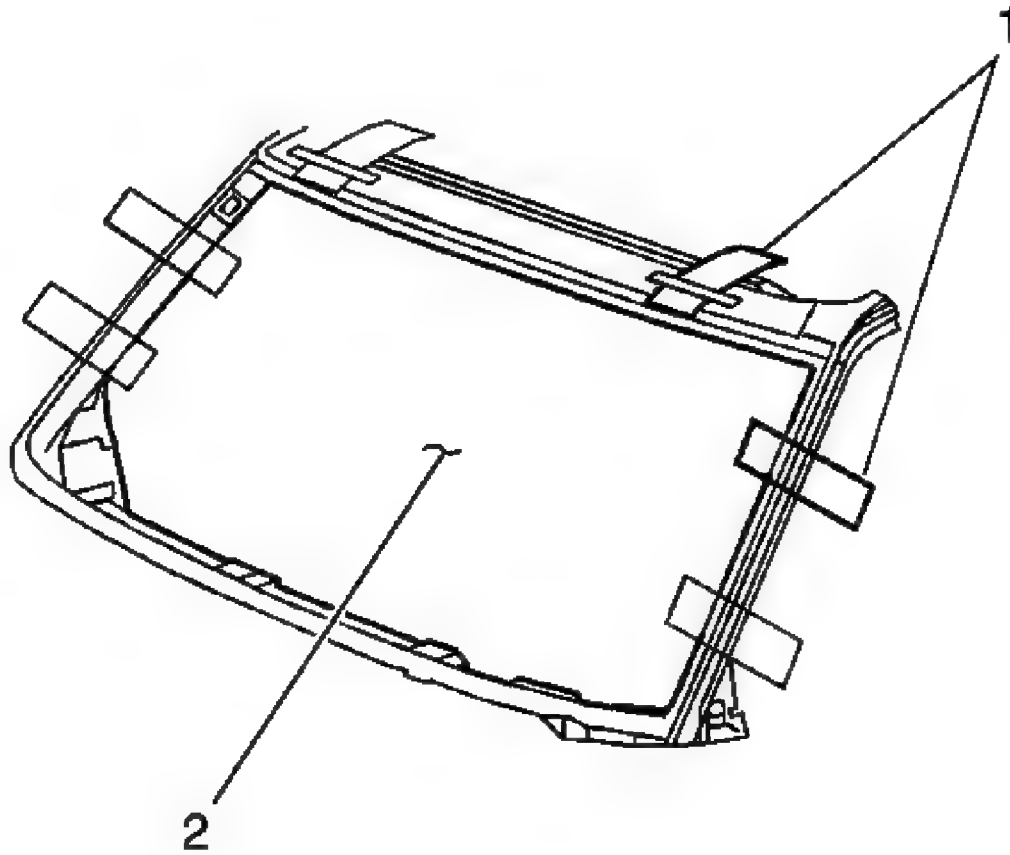


Fig. 49: Aligning Tape Lines On Window To Body
Courtesy of GENERAL MOTORS CORP.

23. Align the masking tape (1) lines on the window (2) and the body.

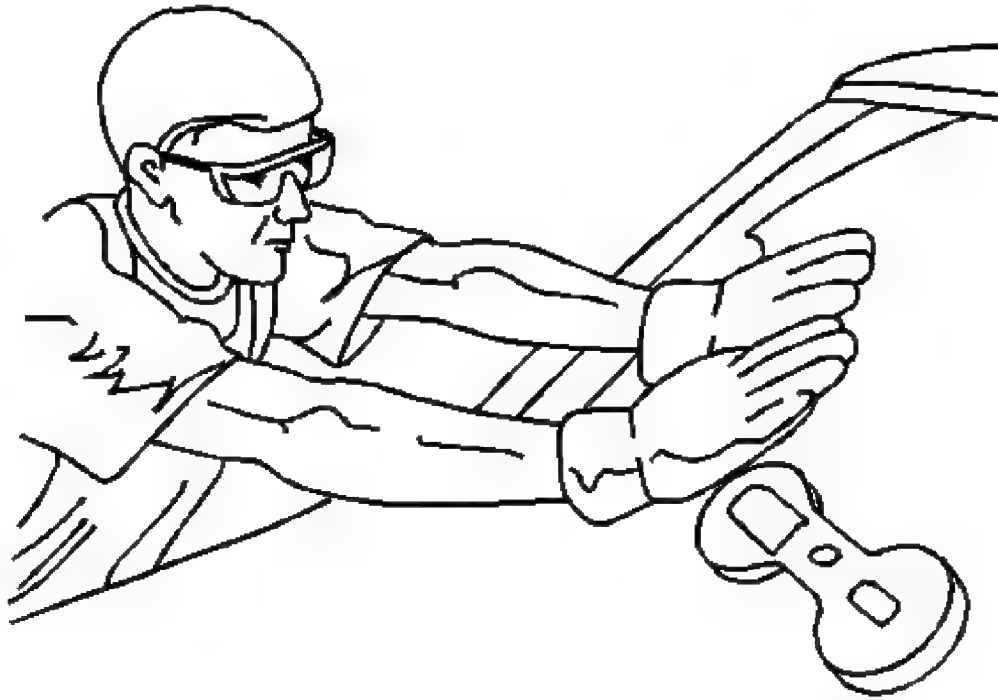


Fig. 50: Pressing Window Into Place
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: To prevent damage to the window due to objects impacting an exposed edge, upon installation, the window must rest 1 mm (0.04 in) below the surface of the sheet metal.

24. Press firmly around the entire periphery of the window in order to wet-out the urethane bead.
25. Tape the window to the body in order to minimize movement until the urethane adhesive cures.

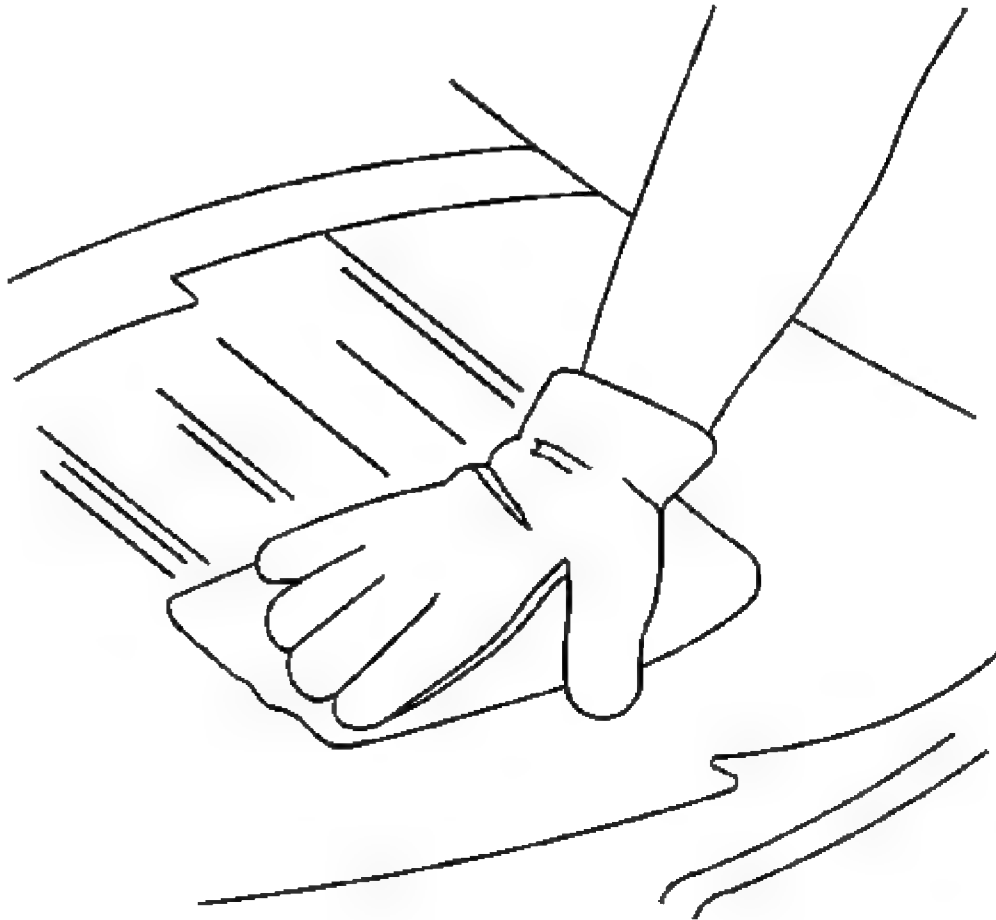


Fig. 51: Cleaning Window
Courtesy of GENERAL MOTORS CORP.

26. Clean any excess urethane adhesive from the body.

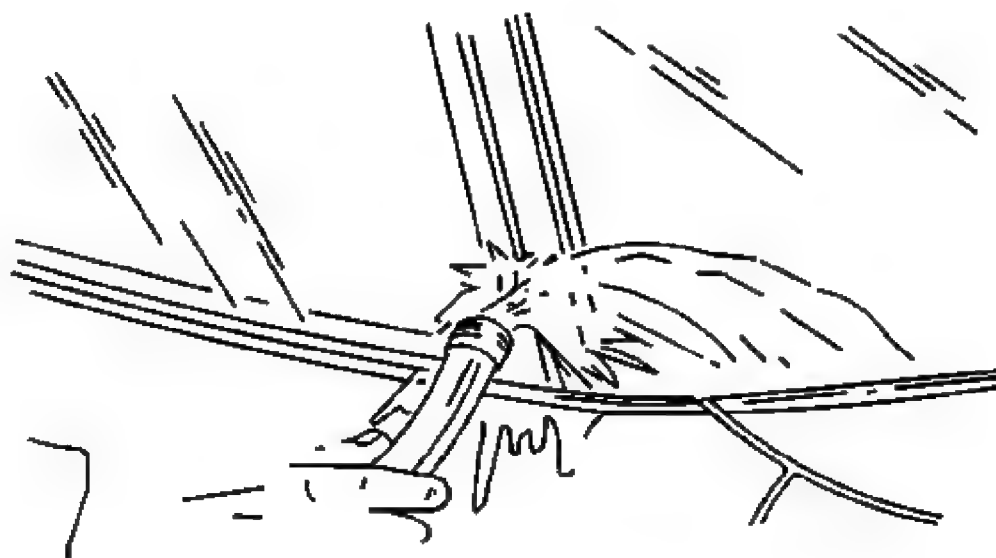


Fig. 52: Performing Water Hose Test
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Do not direct a hard stream of high pressure water to the freshly applied urethane adhesive.

27. Use a soft spray of warm water in order to immediately water test the window.
28. Inspect the window for leaks.
29. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
30. Retest the window for leaks.

CAUTION: Insufficient curing of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

- For the moisture-curing type of urethane adhesive, allow a minimum of 6 hours at 21°C (70°F) or greater and with at least 30 percent relative humidity. Allow at least 24 hours for the complete curing of the urethane adhesive.
- For the chemical-curing type of urethane adhesive,

allow a minimum of 1 hour.

Do NOT physically disturb the repair area until after these minimum times have elapsed.

31. Maintain the following conditions in order to properly cure the urethane adhesive:
 - Partially lower a door window in order to prevent pressure buildups when closing doors before the urethane adhesive cures.
 - Do not drive the vehicle until the urethane adhesive is cured. See the above curing times.
 - Do not use compressed air in order to dry the urethane adhesive.
32. Complete the window installation.

REAR WINDOW REPLACEMENT

Tools Required

- **J 24402-A** Glass Sealant (Cold Knife) Remover. See **Special Tools**.
- **J 39032** Stationary Glass Removal Tool. See **Special Tools**.
- Urethane Adhesive Kit GM P/N 12346392 or Equivalent
- Isopropyl Alcohol or Equivalent
- Cartridge-Type Caulking Gun
- Commercial-Type Utility Knife
- Razor Blade Scraper
- Suction Cups
- Plastic Paddle

Removal Procedure

CAUTION: Refer to Cracked Window Caution .

1. Remove the rear upper garnish moldings. Refer to **Rear Quarter Upper Trim Panel Replacement** .
2. Disconnect the rear window radio antenna connector.
3. Disconnect the electrical connectors from the rear window defogger bus bars.

CAUTION: Refer to Glass and Sheet Metal Handling Caution .

IMPORTANT: Before cutting out a stationary window, apply a double layer of masking tape around the perimeter of the painted surfaces and inner trim.

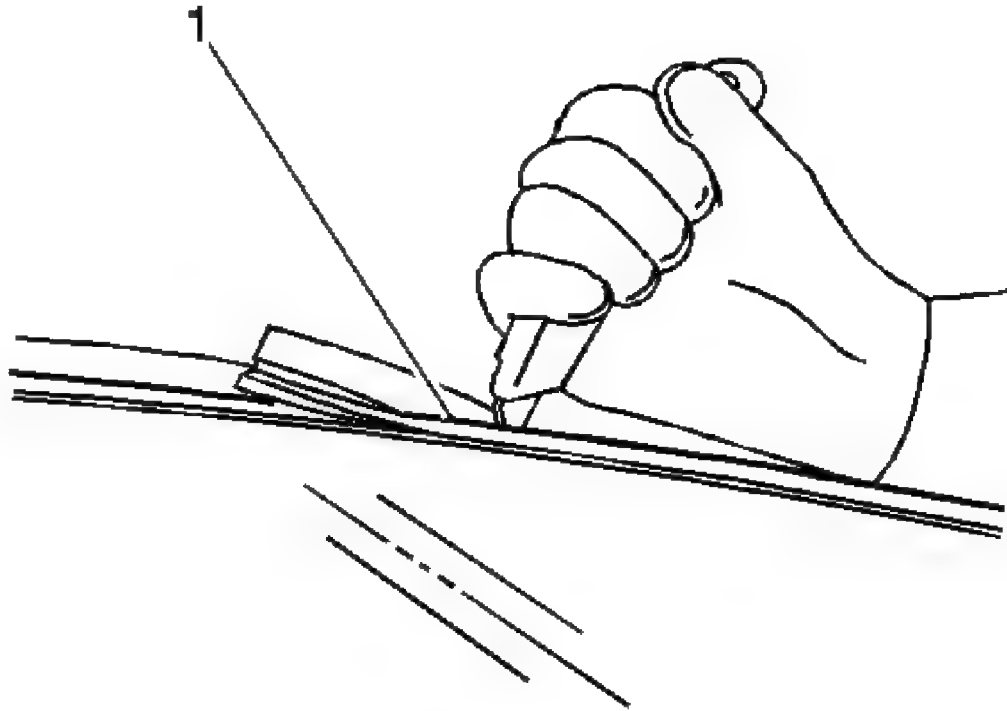


Fig. 53: Using Utility Knife To Remove Reveal Molding
Courtesy of GENERAL MOTORS CORP.

4. Using a utility knife, carefully cut the exposed reveal moldings from around the perimeter of the rear window to access the urethane adhesive bead.

CAUTION: Refer to Defroster Outlet Caution .

5. Cover the following parts to protect from the broken glass:
 - Upper dash pad
 - Defroster outlets and A/C outlets
 - Seats and carpeting

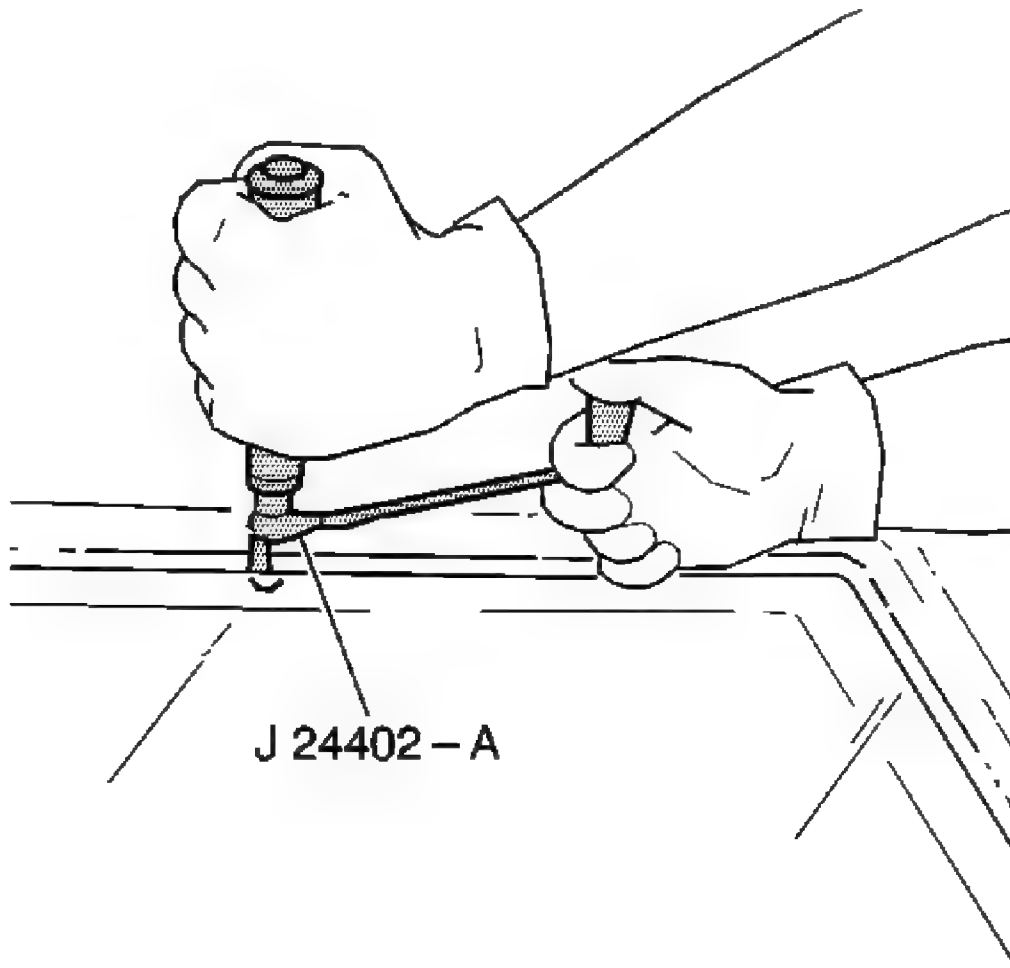


Fig. 54: Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Keep the cutting edge of the tool against the window.

6. Remove the window from the urethane adhesive.
 - Leave a base of urethane approximately 2 mm (0.078 in) on the pinch-weld flange.
 - The only suitable lubrication is clear water.
 - Use **J 24402-A** , **J 39032** or equivalent in order to remove the window. See Special Tools.

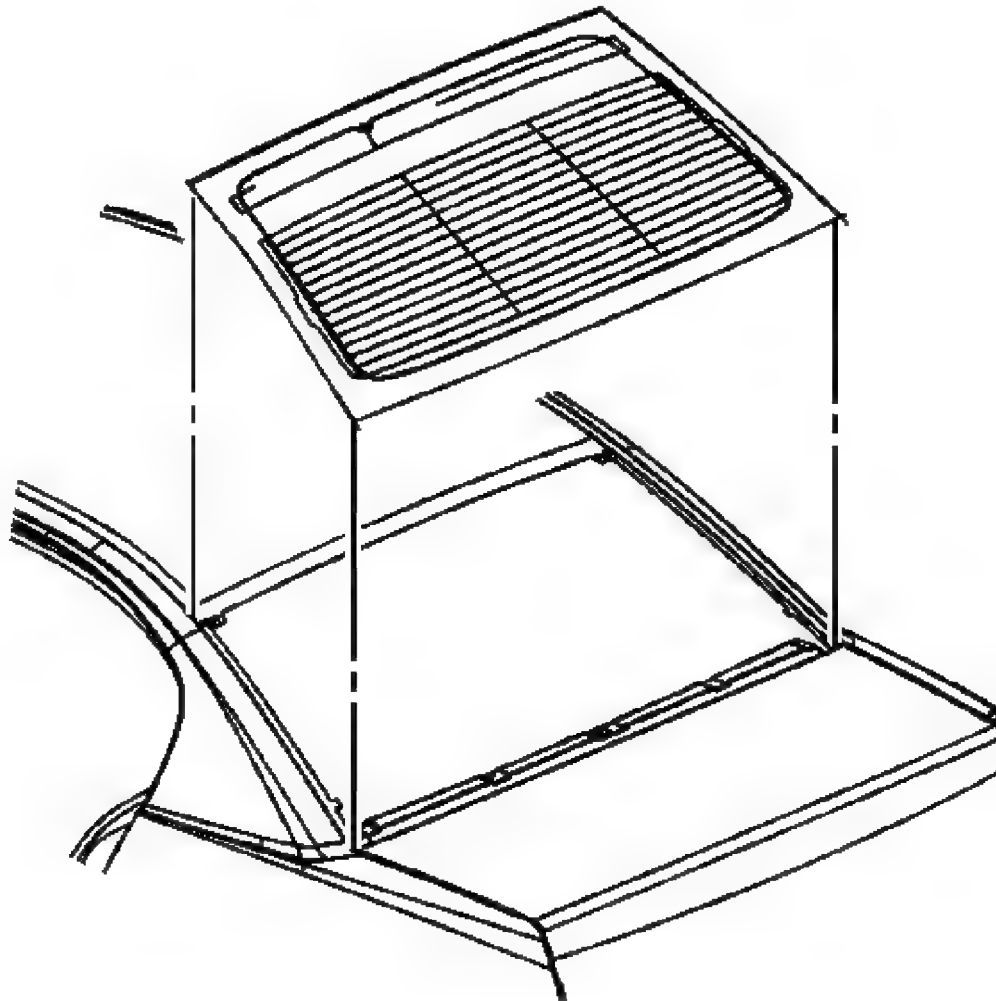


Fig. 55: Removing Window From Vehicle
Courtesy of GENERAL MOTORS CORP.

7. With the aid of an assistant, remove the window from the vehicle.

Installation Procedure

1. Install the rear window into the opening. Refer to **Adhesive Installation of Stationary Windows**.
2. Connect the rear window radio antenna connector.
3. Connect the rear window defogger electrical connectors to the bus bars.
4. Install the rear upper garnish moldings. Refer to **Rear Quarter Upper Trim Panel Replacement**.

5. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

DESCRIPTION AND OPERATION

ADHESIVE SERVICE KIT DESCRIPTION

The GM of Canada Adhesive Caulking Kit, P/N 10952983, contains the following items:

- Four different primers
- A tube of urethane adhesive with a nozzle
- Four daubers
- Instructions with warnings

Use the urethane adhesive caulking kit for replacement of any urethane adhesive-installed window using the full cut method.

In the United States or Canada, you may use any of the following equivalent urethane adhesive systems which meet GM Specification GM 3651G:

- Dow Automotive - Essex 400HV. One part and requires associated primers.
- Dow Automotive - Essex U216. Two part and requires associated primers.

Call Dow Automotive at 1-800-453-3779 for more information.

- 3M™ "Fast Cure" Auto Glass Urethane. One part and requires associated primers.

Call 3M™ at 1-877-666-2277 for more information.

Use these materials based on specific manufacturer. Do NOT intermix primers or adhesives from one manufacturer to another.

Always follow the system manufacturer's instructions for application, handling and curing.

FULL-CUT METHOD DESCRIPTION

IMPORTANT:

- If corrosion of the pinch-weld flange is present or if sheet metal repairs or replacements are required, refinish the pinch-weld flange in order to present a clean, primer-only surface.
- If paint repairs are required, mask the flange bonding area, prior to applying the color coat, in order to provide a clean, primer-only surface.

- **Appropriate materials for these primer applications are typically 2 component catalyzed products. Use materials such as BASF DE15®, DuPont 2610®, Sherwin-Williams PSE 4600 and NP70® and Martin-Semour 5120,5130®, PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application. Follow the manufacturer's directions for the mix, the application and the drying times.**
- **After repairing the opening as indicated, shake the pinch-weld primer black #3 well. Using a new dauber, apply the primer to the primed surface of the flange in the bonding area. Allow the primer to dry for 10 minutes.**

Use only the full cut method, also known in the field as full strip method, when installing windows.

This method includes the following:

- The replacement of a majority of the urethane adhesive bead. Remove all but approximately 2 mm (3/64 in) of the existing bead of urethane adhesive from the pinch-weld flange.
- Apply pinch-weld primer to any exposed painted areas on the pinch-weld flange.

No mounds or loose pieces of urethane adhesive should remain on the pinch-weld flange. Do not remove all traces of urethane adhesive.

REAR WINDOW DEFOGGER DESCRIPTION AND OPERATION

Rear Window Defogger

The rear window defogger system consists of the following components:

- Body control module (BCM)
- Electronic compass
- HVAC control module
- Instrument panel cluster (IPC)
- Rear window defogger grid
- REAR WINDOW DEFOGGER relay

Battery positive voltage is supplied at all times from the BATT MAIN 3 fuse in the underhood fuse block to the coil and switch side of the REAR WINDOW DEFOGGER relay in the

instrument panel (I/P) fuse block. When the rear defogger switch is pressed in the HVAC control module, a class 2 data signal is sent to the BCM. The BCM then applies a ground to the REAR WINDOW DEFOGGER relay. This energizes the relay and allows the battery positive voltage to be applied through the switched side of the relay to the rear window defogger grid. The rear window defogger grid is grounded at all times at G301.

The rear window defogger will turn off automatically after it has been activated. This time is determined by a dynamic timer which varies the amount of time the rear window defogger is allowed to be on based on ambient temperature and vehicle speed. The rear window defogger will be extended when the ambient temperature is cooler or while the vehicle is in motion.

If the battery is low, the BCM will disable the rear window defogger by removing the ground supplied to the REAR WINDOW DEFOGGER relay.

AUTOMATIC DAY-NIGHT MIRROR DESCRIPTION AND OPERATION

Inside Rearview Mirror with Automatic Day-Night System

The automatic day-night system consists of the following components:

- Body Control Module (BCM)
- Inside rearview mirror
- SUN ROOF Fuse 20A

The inside rearview mirror consist of 2 photocell sensors. The headlight sensor, located on the front of the mirror is used to determine light conditions present at the mirror face from sources behind the vehicle. The ambient light sensor, located on the rear of the mirror is used to determine exterior light conditions present at the mirror. At night, with the automatic day-night feature enabled, the inside rearview mirror will automatically darken to reduce glare from headlamps behind the vehicle.

In daytime conditions, the mirror operates at a normal, clear state due to the high exterior light conditions that are indicated by the ambient light sensor. When the vehicles gear selector is placed in the REVERSE position, backup lamp voltage is supplied as an input to the inside rearview mirror. In night time conditions only, the inside rearview mirror monitors the backup lamp voltage to disable the automatic day-night feature. This allows the inside rearview mirror face to gradually change to a normal, clear state and allow the driver to see objects in the mirror clearly when backing up.

Inside Rearview Mirror with Automatic Day-Night Switch Operation

The inside rearview mirror with only the automatic day-night feature has 2 switches that perform the following functions:

- The AUTO switch is used to enable the automatic day-night feature of the inside

rearview mirror. To enable the automatic day-night feature, turn the ignition ON and depress the AUTO switch. A green indicator will illuminate on the inside rearview mirror when the automatic day-night feature is enabled.

- The OFF switch is used to disable the automatic day-night feature of the inside rearview mirror.

Inside Rearview Mirror with Automatic Day-Night and OnStar® Switch Operation

The inside rearview mirror with automatic day-night and OnStar features has 4 switches that perform the following functions:

- The on/off switch is used to enable/disable the automatic day-night feature of the inside rearview mirror. To enable the automatic day-night feature, turn the ignition ON and depress the on/off switch. A green indicator will illuminate on the inside rearview mirror when the automatic day-night feature is enabled. To disable the automatic day-night feature depress the on/off switch.
- The three switches on the right side of the mirror are for OnStar® operation. For more information, refer to **OnStar Description and Operation** in Cellular Communication.

COMPASS CALIBRATION AND MAGNETIC VARIANCE

Compass Calibration

Before calibrating the compass, drive the vehicle to an open area that is magnetically clean or free of large metallic objects such as high tension power lines or large steel buildings. Verify there are no magnetized roof antennas, magnets on or hanging from the mirror or any other magnetized objects on the inside or outside of the vehicle close to the mirror.

1. Start the engine.

IMPORTANT: Before calibrating the compass, make sure the mirror has the correct zone number. Refer to Compass Magnetic Variation Adjustment.

2. Press and hold the switch for the compass, which may be depicted as COMP, COMPASS or on/off (w/UE1) depending on the type of mirror on the vehicle, until the letter "C" or "CAL" is displayed.
3. Drive the vehicle in circles at a speed of less than 8 km/h (5 mph) until the "C" or "CAL" is replaced by a proper vehicle heading. The calibration procedure is now complete.

Compass Magnetic Variation Adjustment

Magnetic variation adjustments are required when the compass displays a constant error in heading. Variation is the difference between magnetic north and true north due to geographical

location.

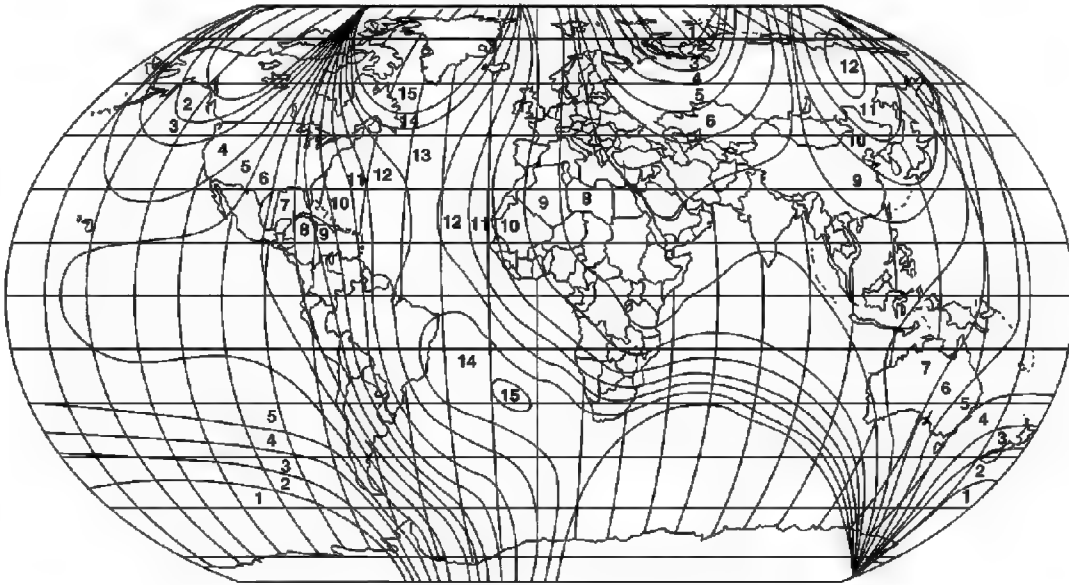


Fig. 56: World Magnetic Variation Map
Courtesy of **GENERAL MOTORS CORP.**

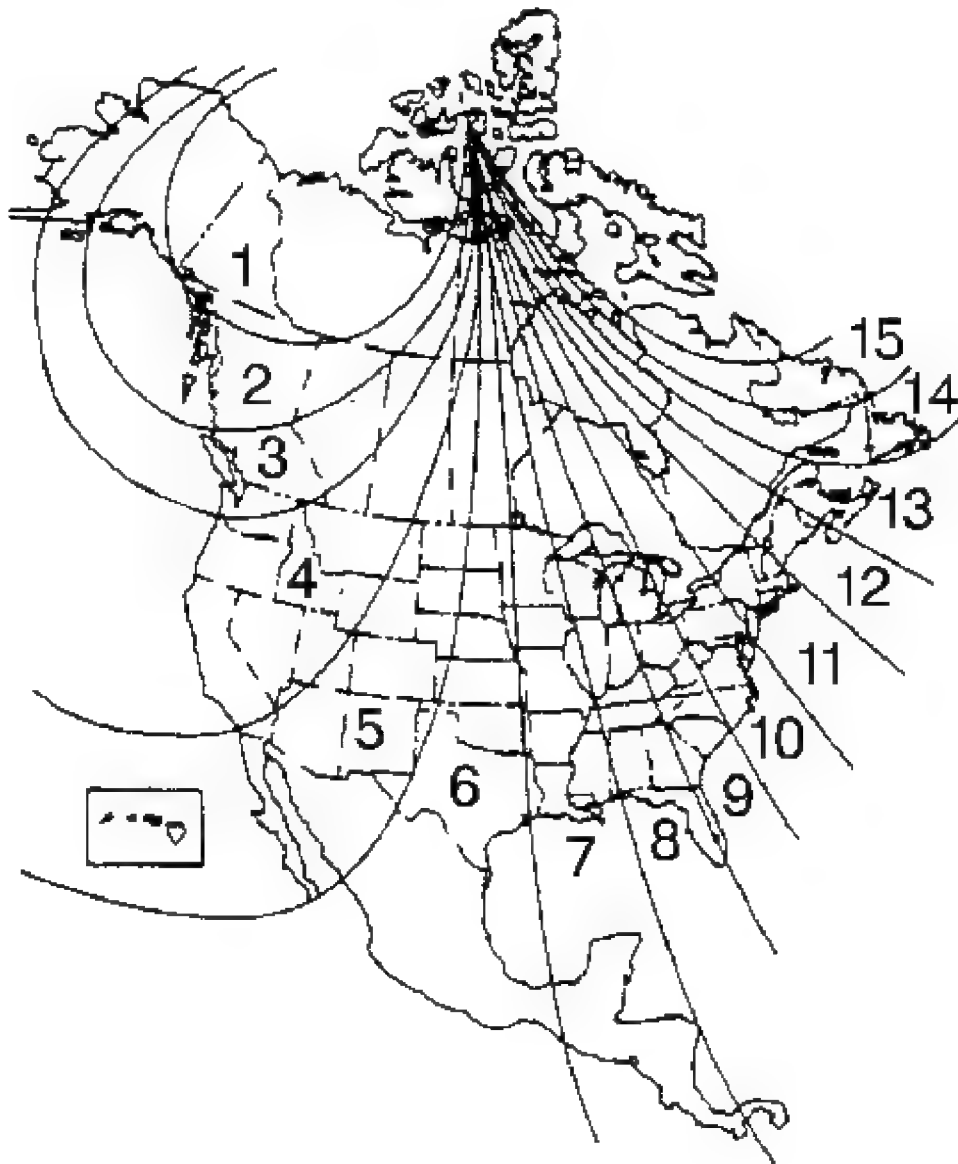


Fig. 57: Illustrating Magnetic Variation Zones
Courtesy of GENERAL MOTORS CORP.

1. Locate your current geographic location on the World Magnetic Variation Map.
2. Turn ON the ignition, with the engine OFF.
3. Press and hold the switch for the compass, which may be depicted as COMP, COMPASS or on/off (w/UE1) depending on the type of mirror on the vehicle, until a zone number appears on the compass display.

2006 Buick Lucerne CXS


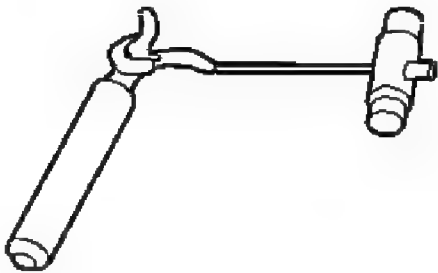
2006 ACCESSORIES & EQUIPMENT Stationary Windows - Lucerne

4. Depress the switch for the compass to select the desired zone number.
5. Wait 5 seconds. The display will return to a compass heading. The variance procedure is now complete.
6. Calibrate the compass. Refer to **Compass Calibration**.

SPECIAL TOOLS AND EQUIPMENT

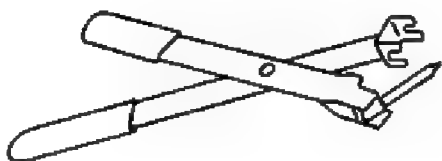
SPECIAL TOOLS

Special Tools

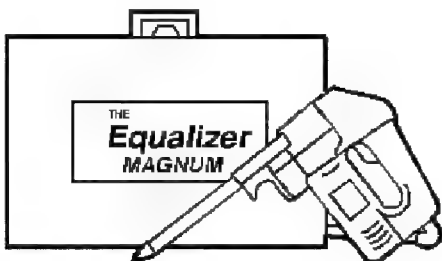
Illustration	Tool Number/Description
	J-9886-01 Door Handle Clip Remover
	J-24402-A Glass Sealant Cold Knife Remover
	J-33431-C Signal Generator and Instrument Panel Tester

2006 Buick Lucerne CXS

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J-34946
Window Pin Remover



J-39032
Stationary Glass Removal Tool

J-39040
Quarter Window Remover

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